

# Community Preservation Act Committee Town of Arlington

## CPA Funding – FY2021 Final Application

One (1) electronic copy and three (3) hard copies of the completed application must be submitted to the CPAC **no later than 4 p.m. on December 9, 2019** in order to be considered for advancement to the final application stage, with the electronic copy sent to [jwayman@town.arlington.ma.us](mailto:jwayman@town.arlington.ma.us) and the hard copies to:

Community Preservation Committee c/o Julie Wayman  
Town of Arlington, 730 Massachusetts Ave., Arlington, MA 02476

Applications will be date stamped and assigned control numbers in the order that the hard copies are received. This PDF form may be completed on a computer using [Adobe Reader](#).

### 1. General Information

Project Title: Minuteman Bikeway Planning Project  
Applicant/Contact: Jennifer Raitt, Director of Planning & Community Development  
Organization: Department of Planning & Community Development  
Mailing Address: Town Hall, 730 Massachusetts Avenue, Arlington, MA 02476

Telephone: 781-316-3092 E-mail: jraitt@town.arlington.ma.us

### 2. CPA Eligibility (refer to the chart on page A-4)

CPA Category (select one):

☐ Community Housing ☐ Historic Preservation ☐ Open Space ☒ Recreation

CPA Purpose (select one):

☐ Acquisition ☐ Creation ☐ Preservation ☒ Support ☐ Rehabilitation & Restoration

### 3. Budget

Amount Requested: \$65,000 Total Project Cost: \$65,000

Signature  Date 12/6/19

*Please answer and document all questions on the following page*

## PROJECT DESCRIPTION:

The Town of Arlington's Department of Planning and Community Development (DPCD) requests \$65,000.00 in Community Preservation Act funds to complete a planning study for the Minuteman Commuter Bikeway through Arlington. The purpose of the planning study is to develop community goals, priorities, and an implementation plan specific to the Bikeway corridor to address issues around access to the Bikeway, safety of users, sharing the path by many different travel modes, placemaking and public art, and connections to adjacent and nearby uses including recreation areas. The funds will be used to hire a consultant to assist the Town to complete this study. The DPCD will work with members of the Arlington Bicycle Advisory Committee on this project as well as other stakeholders, such as East Arlington Livable Streets, Walking in Arlington, and ACAC.

### 1. **Goals:** What are the goals of the proposed project?

The primary goals of the project are to develop a shared community vision and implementation plan for improving access, safety, placemaking, public art, and local connections to the Minuteman Bikeway in Arlington.

In Arlington, the Bikeway spans three miles across the entire length of the town, connecting the town with Lexington to the northwest and the Alewife MBTA Station in Cambridge to the southeast. Leading up to its construction, the DPCD was a key partner in bringing the project to fruition. Constructed in 1992 as a commuter bikeway and rail trail project, the bikeway was designed to accommodate cyclists and pedestrians on a safe, secure, off-road pathway through town. More than 25 years later, the bikeway functions as that and much more: it serves as a commuting corridor that connects the Towns of Bedford and Lexington to Arlington and the Alewife MBTA Station; a tourist destination for cycling travelers; a town-wide recreation amenity for pedestrians, runners, cyclists, dog walkers, and those using non-traditional modes; a space for public art and historic markers; and a linear pathway that connects Arlington's recreational amenities and major business districts.

The Minuteman Bikeway is one of the most frequently traveled non-motorized corridors in the state, with an average of 2,700 trips per day and peaks of well over 4,000 trips on weekends, particularly in the summer and fall months. It provides a direct connection to Alewife Station and the MBTA Red Line subway for non-motorized users from Arlington, Lexington, and Bedford. Residents and visitors alike rely on the Bikeway as a safe and secure transportation corridor for cyclists, pedestrians, and other modes, as well as a location for recreation and fitness away from automobile traffic. At the same time, residents have increasingly cited concerns with the Bikeway ranging from safety, lighting, and points of access.

In 2014, a corridor study was developed for the entire Bikeway called "Navigating the Minuteman Bikeway". This study included data collection of trail amenities and general recommendations for wayfinding signage, intersection improvements, trailheads and waysides, maintenance, and other improvements. This planning study proposes to go beyond this previous effort to focus in on Arlington's portion of the Bikeway and tackle items that were not specifically addressed at that time.

With the planning process for the Sustainable Transportation Plan commencing in early 2020, this coming fiscal year is an opportune time to conduct a parallel visioning process around the future of the Minuteman Bikeway. The Sustainable Transportation Plan will be a broad, townwide vision for the future of transportation in Arlington for the next 20 years, but the scope



of the plan does not include specific planning for the Bikeway. A separate parallel planning process would ensure that the Bikeway is given the priority it deserves, while making sure that a more specific outreach and engagement process is completed.

The scope of the Minuteman Bikeway Visioning Project includes development of community goals, priorities, and an implementation plan specific to the bikeway corridor. The plan would focus on the following key elements:

- access to the bikeway;
- safety;
- shared mobility;
- placemaking, including public art; and
- connections to parks and recreation and other amenities.

To ensure that the plan represents the community vision for the Bikeway, Bikeway users, adjacent property owners, and Arlington residents will be invited to engage in focus groups, design charrettes, and public meetings throughout the planning process.

**2. Community Need:** Why is the project needed? Does it address needs identified in existing Town plans? If so, please specify.

Developing a shared community vision and implementation plan for the Minuteman Bikeway would simultaneously address users' expressed concerns about pressing issues while providing an opportunity for the town to be more visionary about what the future Bikeway could look and feel like and how it could function. The project would consider the needs of all individuals who interface with the Bikeway, from drivers who may only experience it at intersections or crosswalks to pedestrians and cyclists who travel its length, and property owners along the Bikeway.

This project would advance the Arlington Master Plan goal of improving the Minuteman Bikeway by addressing the conditions, access, and safety for bicyclists on the Bikeway and local streets, and by strengthening connections between the Bikeway and commercial streets to increase customer access without increasing the need for on-street parking (Arlington Master Plan, pg. 68). Additionally, it would address one of the key transportation goals of the 2019 Mill Brook Corridor Report of improving and expanding connections between the corridor and the Bikeway (pg. 34).

Overall, this project would assist in fulfilling the Master Plan's vision (p. v), which emphasizes "civic connections that encourage social interaction and foster a sense of community." Several of the types of connection highlighted by the vision are relevant to this project: open spaces and corridors that link neighborhoods; stewardship and promotion of our historic heritage; cultural and recreational resources that provide shared experiences; thriving business districts; and a walkable public realm where residents meet their neighbors. This project would also assist in fulfilling the following goals, policies, and recommendations of the Master Plan:

### **Traffic & Circulation**

Goals/Policies (p. 10):

1. Enhance mobility and increase safety by maximizing transit, bicycle, and pedestrian access and other alternative modes of transportation.
2. Manage congestion safely and efficiently by improving traffic operations.

Recommendations (pg. 12):

1. Create safer pedestrian walking conditions to increase walking in Arlington, as a means to reduce traffic congestion and improve public health.
2. Improve conditions, access, and safety for bicyclists on the Minuteman Bikeway and on local streets.

**Economic Development**

Goals/Policies (p. 10):

1. Promote Arlington's historic and cultural assets as leverage for economic development.
2. Improve access to public transit [and parking].

**Historic & Cultural Resources**

Goals/Policies (p. 11):

1. Maintain, protect, preserve, and promote historic and diverse cultural resources in all neighborhoods.
2. Provide attractive, well-maintained spaces for residents to meet, play, and grow.
3. Provide space for arts and cultural activities for all ages.

Recommendations (p. 16):

1. Preserve Town-owned historic resources.
2. Adopt procedures to plan for public art and performance opportunities.

**Natural Resources & Open Space**

Goals/Policies (p. 11):

1. Value, protect, and enhance the physical beauty and natural resources of Arlington.
2. Treasure our open spaces, parks, recreational facilities and natural areas.

Recommendation (p.18):

1. Address maintenance needs for all of the Town's open spaces and natural resources.

**Public Facilities & Services**

Goal/Policies (p. 11):

1. Build, operate, and maintain public facilities that are attractive and help to minimize environmental impact and that connect Arlington as a community.
2. Maintain and beautify our public parks, trails, play areas, and streetscapes.

**3. Community Support:** What is the nature and level of support for this project? Include letters of support and any petitions.

Concerns about the Minuteman Bikeway are frequently brought to Town staff, and are reviewed periodically by the Transportation Advisory Committee and the Bicycle Advisory Committee. Projects relating to the Bikeway such as the Safe Travel Project or the Lake Street/Bikeway signalization project garner significant attention from the public due to the conflicts between non-motorized users and drivers.

The following organizations have also provided support letters for this project, which are attached to this application:

- Arlington Bicycle Advisory Committee
- Arlington Commission for Arts & Culture

- Arlington Conservation Commission
- Mystic River Watershed Association
- Town of Bedford
- Transportation Advisory Committee
- Walking in Arlington

4. **Project Documentation:** Attach any applicable engineering plans, architectural drawings, site plans, photographs, any other renderings, relevant studies or material.

Please see attached photographs documenting various conditions along the Bikeway.

5. **Timeline:** What is the schedule for project implementation, including a timeline for all critical milestones?

If funding is received for this project, the DPCD will develop a Request for Proposals to hire a qualified consultant to assist with creation of the plan. DPCD will seek to release this RFP before the beginning of the next fiscal year so that a consultant can be lined up and begin work as soon as funding is available. After the contract is awarded and the project begins, it is anticipated that the project will take approximately nine to 12 months to complete.

6. **Credentials:** How will the experience of the applicant contribute to the success of this project?

The DPCD staff will oversee the project. Staff have extensive planning, community engagement, design, and project management expertise. Once funds are awarded, staff will create a Request for Proposals to secure consultancy services to assess conditions on the Bikeway, conduct public involvement, and develop an action plan to improve the Bikeway.

7. **Budget:** What is the total budget for the project and how will funds be sourced and spent? All items of expenditure must be clearly identified. Distinguish between hard and soft costs and contingencies. (NOTE: CPA funds may not be used for maintenance.)

The budget for the project is \$65,000. The funds will be used to hire a consultant to develop a plan and strategy for improving various aspects of the Bikeway. No construction is planned within this budget.

8. **Other Funding:** What additional funding sources are available, committed, or under consideration? Include commitment letters, if available, and describe any other attempts to secure funding for this project.

No other funding sources are being sought for this project at this time.

9. **Maintenance:** If ongoing maintenance is required for your project, how will it be funded?

N/A

10. **Impact on Town Budget:** What, if any, potential secondary effects will your proposed project have on the Town's Operating Budget? Are there any capital projects that rely on the successful completion of your project?



Projects or programs that are recommended for action as an outcome of this planning study could potentially lead to requests for town funding or further grant requests from various sources, including but not limited to CPA funds. However, it is impossible to anticipate the scope or financial impact of those recommendations prior to the completion of this planning project. This project will ensure that any new projects for the Bikeway will be pursued in a thoughtful and strategic way, to help prioritize projects and plan further in advance for financial requests. Part of the study may include a review of local and statewide grant funds that can be sought to assist with Bikeway improvements.

There are no capital projects currently that rely on this planning study.

#### **ADDITIONAL INFORMATION:**

1. **Control of Site:** Documentation that you have control over the site, such as a Purchase and Sales Agreement, option or deed. If the applicant does not have site control, explain what communications have occurred with the bodies that have control and how public benefits will be protected in perpetuity or otherwise.

The Arlington Town Manager's office leases and manages the property, which is owned by the MBTA. A copy of this lease agreement is attached to this application. For major infrastructure changes on the Bikeway, the Town must receive permission from the MBTA.

2. **Deed Restrictions:** In order for funding to be distributed, an appropriate deed restriction, meeting the requirements of Chapter 184 of Mass General Laws pursuant to section 12 of the Community Preservation Act, must be filed with the CPAC. Provide a copy of the actual or proposed restrictions that will apply to this project.

N/A

3. **Acquisitions:** For acquisition projects, attach appraisals and agreements if available. Attach a copy of the deed.

N/A

4. **Feasibility:** Provide a list of all further actions or steps that will be required for completion of the project, such as environmental assessments, zoning approvals, and any other known barriers to moving forward.

There are no other steps or approvals necessary to complete this project.

5. **Hazardous Materials:** Provide evidence that the proposed project site is free of hazardous materials or there is a plan for remediation in place.

N/A

6. **Permitting:** Provide evidence that the project does not violate any zoning ordinances, covenants, restrictions or other laws or regulations. What permits, if any, are needed for this project? Provide the expected date of receipt for necessary permits, and copies of any permits already acquired.

N/A

**7. Environmental Concerns:** Identify all known wetlands, floodplains, and/or any natural resource limitation that occur within the boundaries of your submission.

The Bikeway runs through or near to many sensitive environmental and recreation areas, including Thorndike Field, Spy Pond Park, Spy Pond Field, Buzzell Field, Hill's Hill, and Hurd Field. The Bikeway also parallels the Mill Brook for much of its run in Arlington, the No Name Brook runs directly adjacent to it in some areas, and it also passes close to Spy Pond. The Bikeway passes over Alewife Brook just before it enters Cambridge. Many areas of the Bikeway are in wetland buffer zone areas, and a few locations near Thorndike Field are in or pass by wetland areas. This planning study may take issues of wet and flooded areas of the Bikeway into account when recommending improvements, such as addressing significant ponding that occurs on the trail between Lake Street and Linwood Street.

**8. Professional Standards:** Evidence that appropriate professional standards will be followed if construction, restoration or rehabilitation is proposed. Evidence that the applicant and the project team have the proven or potential capacity to conduct the scope and scale of the proposed project, as evidenced by project leaders with appropriate qualifications and technical experience or access to technical expertise.

The Department of Planning and Community Development staff will oversee the project. Staff have extensive planning, design, and project management expertise. Once funds are awarded, staff will create a Request for Proposals to secure consultancy services to assess conditions on the Bikeway, conduct public involvement, and develop an action plan to improve the Bikeway.

**9. Further Attachments:** Assessor's map showing location of the project.

A GIS map showing the location of the Bikeway and parks and recreation spaces is attached to this application.

# Minuteman Bikeway Planning Project CPA Application

Project Documentation –  
Photographs of Bikeway  
Conditions



# Public Art Potential



The Minuteman Bikeway has much untapped potential for murals and other public art.

**Clockwise from top left:** blank wall facing the Bikeway near the intersection with Mill Street; an underpass in Arlington Heights tagged with graffiti; another blank wall facing the Bikeway near Brattle Street.

# Access to the Bikeway



Many access points to the Bikeway have issues that make it difficult for users to utilize them

**Clockwise from top left:** landscaping trucks blocking access to the Bikeway at Ryder Street; the opening at Gold's Gym in the Heights leads to a pedestrian-unfriendly parking lot and is not well signed from Park Ave; some access points, like this one at Sunrise of Arlington, are not plowed.



# Wayfinding & Signage



Outdated, damaged, and inconsistent or missing wayfinding and directional signage is frequent.

**Clockwise from top left:** damaged and unreadable signage along the Bikeway; lack of wayfinding signage at Brattle Street and that an wheelchair-accessible opening is a few hundred feet ahead; outdated YIELD and STOP signage at Mystic Street; signage telling users to keep right is inconsistently applied along the corridor.



# Environmental Concerns



Flooding on the Bikeway, particularly in East Arlington, continues to be an issue.

**Both Pictures:** Ponding on the Bikeway between Linwood Street and Lake Street after heavy rains in June 2019.

# Historic Markers and Infrastructure



Historic markers or signs and vestiges of the corridor's legacy as a train route are not well maintained or identified.

**Clockwise from left:** stained and poorly-maintained historic marker in Arlington Heights; an old warning bell, likely for a train crossing, rusted and unmaintained near Linwood Street.

# Minuteman Bikeway Planning Project CPA Application

Letters of Support



December 1, 2019

Community Preservation Act Committee

c/o Julie Wayman

730 Massachusetts Avenue

Arlington, MA 02476

Dear Committee Members,

On behalf of the Arlington Bicycle Advisory Committee (ABAC) I am writing in support of the Department of Planning and Community Development Department's request for funding to develop a planning and visioning study for the Minuteman Bikeway. As one of the most frequently traveled non-motorized corridors in the state, the Bikeway is a critical connection through Arlington and to neighboring towns and cities. ABAC is excited at the prospect of finally having a plan developed through engagement with the community that addresses the future of the Bikeway and allows Town Departments and committees to prioritize improvements.

ABAC has over the years acted as one of the chief guardians of this truly unique public asset since its opening. As such it is a facility that we in the bicycling community wish to continue as a premier biking corridor for commuter and recreational bike users in addition to its other multi modal uses.

ABAC strongly urge the committee to fund this planning study for the Minuteman Bikeway, a vital recreational corridor and commuting route for the Town of Arlington.

Sincerely,

Christopher Tonkin

Chair

Arlington Bicycle Advisory Committee.



11/25/19

Community Preservation Act Committee  
c/o Julie Wayman  
730 Massachusetts Avenue  
Arlington, MA 02476

Dear Committee Members,

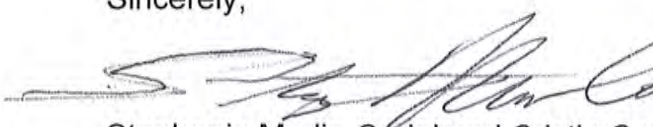

On behalf of the Arlington Commission for Arts and Culture, we are writing in support of the Department of Planning and Community Development Department's request for funding to develop a planning and visioning study for the Minuteman Bikeway.

The bikeway been instrumental in bringing visitors from other towns and cities to see what Arlington has to offer, while also providing important connections between our town's business districts. The Cultural District, which spans two business districts, would not have been possible if the bikeway did not serve as a cultural, as well as recreational, resource. As a commuter route bringing visitors in and out of town, a natural landscape shaded by trees that runs alongside ponds and parks, and as a space for healthful, environmentally-friendly recreation, the bikeway has been a natural stage and audience-building tool for public art works addressing the environment, the diversity of our community, immigration, natural history, and the joy of biking.

We are excited to work with the Department of Planning and Community Development and stakeholder organizations toward making the bikeway a safe, and enriching experience for all.

We strongly urge the committee to fund this planning study for the Minuteman Bikeway, a vital recreational corridor and commuting route for the Town of Arlington.

Sincerely,

  
  
Stephanie Marlin-Curiel and Cristin Canterbury Bagnall  
Co-Chairs, Arlington Commission for Arts and Culture



## TOWN OF ARLINGTON

730 Massachusetts Ave.  
Arlington, MA 02476  
781-316-3012

### ARLINGTON CONSERVATION COMMISSION

November 26, 2019

Arlington Community Preservation Committee  
c/o Julie Wayman, Town of Arlington  
730 Massachusetts Avenue  
Arlington, MA 02476

RE: Minuteman Bikeway Planning CPA Application

Dear Community Preservation Act Committee,

The Conservation Commission unanimously voted to support the Department of Planning and Community Development's application for Community Preservation Act funds to develop a planning and visioning study for the Minuteman Bikeway.

The Conservation Commission supports the improvements to connectivity between open spaces and ecological enhancements that will be discussed in the community engagement process and prioritized in the project's goals.

The Commission urges the Community Preservation Committee to support the Department of Planning and Community Development's application to vision and plan for the Minuteman Bikeway.

Sincerely,

*Arlington Conservation Commission (ACS)*

The Arlington Conservation Commission



December 3, 2019

Community Preservation Act Committee  
c/o Julie Wayman  
730 Massachusetts Avenue  
Arlington, MA 02476

Dear Committee Members,

On behalf of the Mystic River Watershed Association, I am writing in support of the Department of Planning and Community Development Department's request for funding to develop a planning and visioning study for the Minuteman Bikeway. As one of the most frequently traveled non-motorized corridors in the state, the Bikeway is a critical connection through Arlington and to the growing network of greenways in Greater Boston.

The Minuteman Bikeway has served as a successful precedent as we work to implement a contiguous network of shared-use paths along the Mystic River from the Mystic Lakes to Boston Harbor. We are able to show how a shared-use path can function as a commuter and recreational corridor as well as a unique community asset. After passing its 25<sup>th</sup> anniversary, we see a need for a community-driven revitalization plan so that this corridor can meet the growing demand of local and regional users. Proliferating invasive plants, user conflicts and the need for more access points are a few issues that we would like to see addressed in this comprehensive plan.

We strongly urge the committee to fund this planning study for the Minuteman Bikeway, a vital recreational corridor and commuting route for the Town of Arlington and model greenway for the Mystic River watershed. If you have any questions or require additional information, please contact MyRWA at (781) 316-3438 or by emailing [amber.christoffersen@mysticriver.org](mailto:amber.christoffersen@mysticriver.org).

Thank you for your consideration.

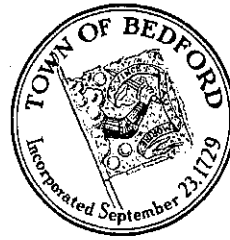
Amber Christoffersen

A handwritten signature in blue ink, appearing to read "AmCh", written over a light blue horizontal line.

Greenways Director  
Mystic River Watershed Association

**TOWN OF BEDFORD**  
BEDFORD, MASSACHUSETTS 01730

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[www.bedfordma.gov](http://www.bedfordma.gov)

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December 6, 2019

Community Preservation Act Committee  
c/o Julie Wayman  
730 Massachusetts Avenue  
Arlington, MA 02476

Dear Committee Members,

On behalf of the Town of Bedford, I am writing in support of the Town of Arlington Department of Planning and Community Development Department's request for funding to develop a planning and visioning study for the Minuteman Bikeway. As one of the most frequently traveled non-motorized corridors in the state, the Bikeway is a critical connection through Arlington and to the Towns of Bedford and Lexington. We support Arlington's plan developed through engagement with the community that addresses the future of the Bikeway and allows Town Departments and committees to prioritize improvements.

The Town of Bedford would be interested in the results of the planning study and its applicability to our planning efforts surrounding the Minuteman Bikeway in Bedford.

We support the committee to fund this planning study for the Minuteman Bikeway, a regional recreational corridor and commuting route for the Towns of Arlington, Bedford and Lexington.

Sincerely,

Sarah Stanton  
Town Manager





## Arlington Transportation Advisory Committee

December 5, 2019

Community Preservation Act Committee  
c/o Julie Wayman  
730 Massachusetts Avenue  
Arlington, MA 02476

Dear Committee Members,

On behalf of the Arlington Transportation Advisory Committee, I am writing in support of the Department of Planning and Community Development Department's request for funding to develop a planning and visioning study for the Minuteman Bikeway. As one of the most frequently traveled non-motorized corridors in the state, the Bikeway is a critical connection through Arlington serving both Arlington and neighboring communities. TAC is excited about the prospect of finally having a plan developed through engagement with the community that addresses the future of the Bikeway and allows Town Departments and committees to prioritize improvements to the Bikeway itself and neighboring facilities.

The purpose of the proposed study is to develop community goals, priorities, and implementation plan specific to the Bikeway corridor to address issues around access to the Bikeway, safety of users, sharing of the path by many different travel modes, and connections to adjacent and nearby uses including recreation areas. These are issues important to the TAC that have not been addressed in a comprehensive fashion since the opening of the Bikeway. In addition, the Bikeway study will be coordinated with the development of the Town's Sustainable Transportation Plan, which will provide a broad, town wide vision for transportation in Arlington for the next 20 years.

I strongly urge the committee to fund this planning study for the Minuteman Bikeway, a vital recreational resource and non-vehicular commuting route for the Town of Arlington and neighboring communities.

Sincerely,

A handwritten signature in blue ink that reads "Howard Muise".

Howard Muise

Chair, Arlington Transportation Advisory Committee

Community Preservation Act Committee  
c/o Julie Wayman  
730 Massachusetts Avenue  
Arlington, MA 02476

11-22-2019

Dear Committee Members,

On behalf of Walking In Arlington I am writing in support of the Department of Planning and Community Development Department's request for funding to develop a planning and visioning study for the Minuteman Bikeway. As one of the most frequently traveled non-motorized corridors in the state, and the only foot and bike connection to Alewife for many, the Bikeway is a critical link through Arlington and to neighboring towns and cities. We are excited at the prospect of finally having a plan developed through engagement with the community that addresses the future of the Bikeway and allows Town Departments and committees to prioritize improvements.

Walking In Arlington is a community based, volunteer run, pedestrian advocacy and walkability group for all ages. We encourage people to walk in Arlington, and work to make walking safer and more fun. We advocate for land use and transportation that is - walkable, sociable, sustainable, active, and just. We are open to all who live, work, shop, study, visit, or worship in Arlington. We advocate for walking as transportation, exercise, community building, and entertainment. People do all of these on the path.

The Minuteman path is a gem of walkability. It is used by thousands a day to commute to the Red Line. It is also used by people of all ages to walk and bike to work, school, shop, services, social visits, errands, and play. Because it allows people to reduce the number of streets they need to cross and cars they need to dodge, it is extremely popular. With thousands of people a day using a path on foot and on bike that is only 10 to 12 feet wide, conflict occurs. Bike pedestrian conflict on the path is a frequent subject of comments and complaints we receive about the pedestrian environment in Arlington. People love the path and use the path. Its increasing popularity makes good planning for the future essential if it is to continue to serve the residents and visitors of Arlington well.

We strongly urge the committee to fund this planning study for the Minuteman Bikeway, a vital economic link, recreational corridor and commuting route for the Town of Arlington.

Yours On Foot

Walking In Arlington

Founder and Chair

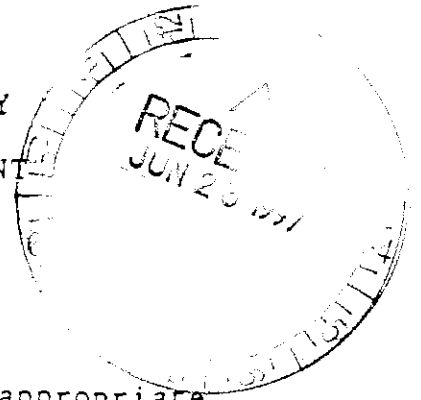
Rachael Stark

# Minuteman Bikeway Planning Project CPA Application

Lease Between Arlington  
and MBTA

*Revised  
+ 11*

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY  
LICENSE AGREEMENT - LEXINGTON BRANCH SEGMENT  
TOWN OF ARLINGTON



1. Parties/  
Premises

Subject to prior authorization from appropriate regulatory authority to remove the rail, ties and track appurtenances of a railroad now or formerly subject to the provisions of the Interstate Commerce Act (49 USC, Section 10101 et. seq.), MASSACHUSETTS BAY TRANSPORTATION AUTHORITY, a body politic and corporate and a political subdivision of the Commonwealth of Massachusetts, with a usual place of business at Ten Park Plaza, Boston, Massachusetts 02116 ("MBTA"), does hereby agree to license the TOWN OF ARLINGTON, a Town established under Massachusetts law with a mailing address at Town Hall, Arlington, MA 02174 ("Arlington") and Arlington hereby agrees to accept such license, subject to the terms and conditions hereof, in the right and privilege to use a segment in Arlington of the line of railroad of MBTA known as the Lexington Branch, approximately 3.58 miles in length, extending between Milepost 4.91 at the Cambridge/Arlington boundary line and Milepost 8.32 at the Arlington/Lexington boundary line (the line segment).

2. Term

The foregoing license shall commence upon a date stated in a notice not less than thirty (30) days and not more than sixty (60) days from the date of such notice stating that the prior authorization described hereinabove has been received, but subject to the prior approval by MBTA of construction within the premises as hereinafter described, and shall continue unless and until MBTA shall give notice to Arlington that it intends and elects to terminate the within license on a date stated in such notice sixty (60) or more days from the date of such notice on the grounds that the line segment is required by MBTA for mass transit extension or that regulations or orders of appropriate regulatory authority require such termination.



3. Use of Licensed Premises      Arlington agrees that it will use the line segment as a "bikeway", a way established for the passage of bicycles without motive power.

4. Construction

(1) (a) The within agreement shall become effective as a grant by MBTA and acceptance by Arlington of license when Arlington has caused construction of a bikeway within the premises to be completed and accepted by the Chief Engineer of Railroad Operations of MBTA (C.E.R.O.) in writing as completed in accordance with plans for such construction previously approved by C.E.R.O. Construction of such bikeway and the plans and approvals thereof shall include removal of rails, ties, track and track appurtenances from the premises and the storage thereof at a location within Massachusetts as designated by C.E.R.O.

(b) No construction shall be done in the line segment without the prior written approval by C.E.R.O. to plans submitted to MBTA by Arlington. Arlington may be required to remove any construction not so approved.

5. Maintenance

Arlington shall at all times maintain the line segment in good and safe condition and appearance, free from rubbish and obstructions. During the license term, MBTA shall have no responsibility whatsoever for maintenance repair, or the condition of the line segment and Arlington agrees that it will occupy the premises at its own expense and risk.

6. Condition of Line Segment

MBTA hereby expressly disclaims any warranties of any nature, express or implied, as to the line segment, and any other warranties of any nature, express, implied or otherwise, except as expressly set forth herein. Lessee accepts the line segment "as is".

7. Indemnification of MBTA

Arlington shall indemnify and save MBTA harmless from and against any and all loss, costs, damage and expense (including reasonable attorneys' expenses and fees), causes of action, suits, claims, demands or judgments of any nature whatsoever that may be imposed upon or incurred by or asserted against MBTA by reason of any of the following occurrences during the term of this License:

(3)

- (a) any accident, injury to, or death of any person or any damage to property occurring on the line segment or any part thereof; or
- (b) any use, nonuse, condition, or occupation by Arlington of the line segment or any part thereof; or
- (c) any failure of Arlington to perform or comply with any of the terms hereof or of any contracts, agreements or restrictions, statutes, laws, ordinances or regulations affecting the line segment or any part thereof or the ownership, occupancy or use thereof.

8. Security

Arlington shall provide security and fire protection in the line segment during the term hereof. Arlington shall not be required to provide lighting in the premises.

9. Bridge Maintenance

Arlington shall maintain the surfaces of any and all overpasses or bridges, if any, over the line segment which MBTA was required to maintain prior to the date of the within license, including, without limiting, general cleanliness and appearance and alterations required for use as part of the bikeway. MBTA shall maintain the structural integrity of all such overpasses or bridges. MBTA reserves the right to withdraw any overpass or bridge from use under the within license if, in its sole determination, it determines that such overpass or bridge is unsafe.

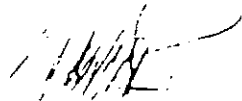
10. MBTA agrees to apprise Arlington of any statutes, laws, enactments or regulations which do or may affect Arlington in the undertakings which it has assumed under this license.

(4)

IN WITNESS WHEREOF, the parties hereto, each for itself its successors and assigns, have caused these presents to be executed by its officers, thereunto duly authorized on the                      day of                      , 1987.

MASSACHUSETTS BAY  
TRANSPORTATION AUTHORITY

APPROVED AS TO FORM:



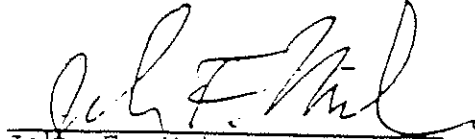
Walter B. Prince  
General Counsel

S.C.  
ERH

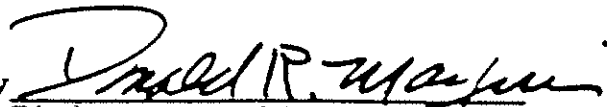
  
James F. O'Leary  
General Manager

TOWN OF ARLINGTON

APPROVED AS TO FORM:



John F. Maher  
Town Counsel

By   
Title: Donald R. Marchis  
Town Manager

# Minuteman Bikeway Planning Project CPA Application

Bikeway and Open Space  
Location Map



# Parks, Open Space, and Recreation Map

of the  
Town of Arlington, MA

## LEGEND

- Town Owned, Protected
- State Owned, Protected
- Private Owned, Protected
- Town Owned, Unprotected
- Conservation Restriction
- R Playground / Recreation Site
- Minuteman Bikeway
- Brook / Stream (surface)
- Brook / Stream (subsurface)
- WaterBody
- Highway
- Major Road
- Public / Private Road
- Private Drive
- Town Boundary

The information shown on this map is from the Arlington Geographic Information System (GIS) database and is intended for informational purposes only. The Town of Arlington has made reasonable efforts to ensure accuracy of the content, but does not guarantee the accuracy of the information. Users are responsible for determining its suitability for their intended use or purpose.

Map created by the Arlington GIS Office,  
11/14/2017.





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# Navigating the Minuteman Commuter Bikeway

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**July 2014**

Prepared for the Towns of Arlington, Bedford, and Lexington, MA





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# 1. Project Overview

## Executive Summary

*Navigating the Minuteman Commuter Bikeway* is a plan that recommends infrastructure improvements, programs and policies to ensure the Minuteman Commuter Bikeway retains its attractiveness as a commuter bikeway and continues to accommodate new users in the future. The primary purpose of this plan is to develop a logical and cohesive navigational system along the Bikeway to better connect users to the trail and its surroundings. The plan also recommends a palette of trail amenities that will serve the needs of Bikeway users while preserving the historical and natural characteristics of the trail. Additionally, the plan identifies strategies to improve safety and comfort where the trail intersects with roadways along the length of the Bikeway.

## Context

The Minuteman Commuter Bikeway was completed in 1993 by the Commonwealth of Massachusetts on an inactive railroad right-of-way, and extended to the Alewife MBTA station in Cambridge in 1999. The existing Minuteman Commuter Bikeway is a 10-mile multi-use trail system, which extends from Alewife Station in Cambridge to Bedford Depot in Bedford, travelling through the towns of Arlington and Lexington. Each Town/City has independent operating and maintenance responsibilities for its respective portion of the Bikeway.

The trail travels through a diverse landscape composed of rural, suburban, and urban settings. Plans to extend the Minuteman Commuter Bikeway beyond Bedford Depot along the Reformatory Branch Trail are currently in development. The Bikeway also provides connections to regional trail networks including the Bedford Narrow Gauge Rail Trail, the Fitchburg Cutoff Bike Path, the Somerville Community Path, and the Alewife Greenway Bike Path. And, as recommended in the *Commonwealth Connections* plan, begun in 1999 by the Massachusetts Department of Environmental Management, new greenway connections to the Minuteman are under various levels of planning (Minuteman Extension), design (Somerville Green Line Extension), and construction (Cambridge-Belmont-Somerville Linear Park). As these additional connections are completed, the Minuteman Commuter Bikeway likely will see tremendous growth in use, further strengthening its role as an essential component of the region's transportation and recreational network.

The Minuteman Commuter Bikeway is one of the most popular shared-use paths in the Commonwealth and is recognized as a National Trail Landmark by the Rails-to-Trails Conservancy. Although the path is called a "Bikeway," it is used by walkers, runners, and skaters in addition to bicyclists. The section of the trail in Arlington hosts similar numbers of walkers as bicyclists, in part due to its population density which is higher than Bedford and Lexington. References and promotion of the Bikeway should use inclusive language that addresses its use by pedestrians, as well as other non-motorized modes, such as inline skating, while still retaining its identity as a commuter bikeway. In addition to utilitarian, recreational and fitness uses, the trail supports local



tourism and commerce by virtue of its location running through the commercial center of each Town. This alignment allows trail users to walk or bike to shopping, parks, historic sites, senior activity centers, libraries, farmers' markets, schools, businesses, and workplaces. The Minuteman Commuter Bikeway itself is a regional destination attracting users from throughout the larger region. Adjacent communities are currently developing navigational systems which direct their residents and visitors to the trail.

The Towns of Arlington, Bedford, and Lexington collaborated to secure funding from the Department of Conservation and Recreation Recreational Trails Grants Program to create a unified navigational plan. Representatives from each Town's bicycle advisory committee participated in a stakeholder group to guide the plan and provide input during its development.

The purpose of the plan is to develop a uniform strategy for strengthening the Minuteman Commuter Bikeway's identity through upgrading and adding elements such as signs, pavement markings and amenities. The trail should include additional inviting and convenient waysides and trailheads with amenities and information throughout the trail corridor. An integrated wayside and interpretative system will create an additional layer of interest along the trail for users to learn about the historical, natural, and cultural context of the Bikeway and adjacent areas.

The navigational system should be designed with an understanding of the wide range of users, including bicyclists with varying levels of ability, pedestrians, and other users who have different needs and behavioral characteristics. Lastly, the navigational system must be designed with a maintenance strategy to ensure individual elements can be easily updated, repaired or replaced as needed. This plan outlines recommendations for a cohesive and comprehensive navigational system which will strengthen the identity of the Minuteman Commuter Bikeway and improve connections to local neighborhoods and the emerging regional trail system.

This plan outlines principles and recommendations for improvements across eight categories:

- Wayfinding and signage
- Trailheads and waysides
- Intersections
- Partnerships
- Community Outreach
- Policing and Public Safety
- Maintenance
- Future Improvements

Although these principles and recommendations are separated into distinct categories, each recommended improvement builds on the others to support an improved Bikeway as a whole.



# Public Process

To gather necessary background information for this project, stakeholders and the public were engaged using a variety of methods. Input from a diverse set of constituencies was gathered and incorporated into all stages of developing the proposed improvements presented in this plan. The process is generally described below, with additional detailed information located in the appendix.

Outreach efforts included:

- **Project Kick-off Meeting:** Representatives from the Towns of Arlington, Bedford, and Lexington attended a project kick-off meeting to define goals for the project, confirm the scope of work, and identify areas of concern that should be focused on during the project.
- **Stakeholder Ride:** Stakeholders participated in a group ride on the Bikeway to identify and discuss future opportunities and issues.
- **Online Questionnaire:** An online questionnaire was distributed to gather input from the public regarding navigational issues, difficult intersections, and desired amenities.
- **Online Mapping Tool:** An online mapping tool was developed and distributed to gather input from the public regarding the connections to the Bikeway, problem areas, etc.
- **Trailside Public Open House:** A public open house was conducted adjacent to the Bikeway at the Lexington Depot to present the results of the public input, principles, and recommendations and to gather additional comments.

A summary of the various public involvement efforts are included in **Appendices A and B**. Results of these efforts is included in the following section and was used to develop the recommendations included in this report.



## 2. Existing Conditions

During the summer of 2012, field work was conducted and public outreach was initiated to identify the current condition of the Minuteman Commuter Bikeway and its relationship to the larger corridor.

14 community members volunteered to collect data on existing conditions and features along the Minuteman Commuter Bikeway from the Cambridge City Line to the Bedford Depot. Hands-on training was conducted for performing inventory using GPS-enabled smart phone cameras. After completion of the training, volunteers selected sections of trail and over the next two weeks performed a photographic inventory of all signage, pavement condition, site furniture, intersections, and any notable features along the trail. Volunteers uploaded approximately 1,300 geo-tagged photos which were used to create “heat maps” of amenities. These maps can be found in **Appendix D**. (Note: The accuracy and completeness of the inventory is limited by the volunteer nature of the effort.)

Additionally, an online crowdsourcing map (WikiMap) and online survey were created to collect information on Bikeway users’ activities, behaviors, and preferences. On the map, users were able to chart their routes to and from the Bikeway specifying the frequency, mode, and general nature of their trips. Users identified points along the Bikeway for potential infrastructure improvements and were able to upload photographs of specific locations. For the online survey, participation was solicited through email, newspaper articles, and by distributing announcements with a QR code linked to the survey. Nearly 1,000 responses were recorded for the 15-question survey.

Below is a summary of current conditions; details are presented in the following chapters.

### Usage

Based on results of the online questionnaire, the online mapping tool, discussions with stakeholders, and on-site observations, the Bikeway sees a wide range of users with a variety of trip purposes.

Users include:

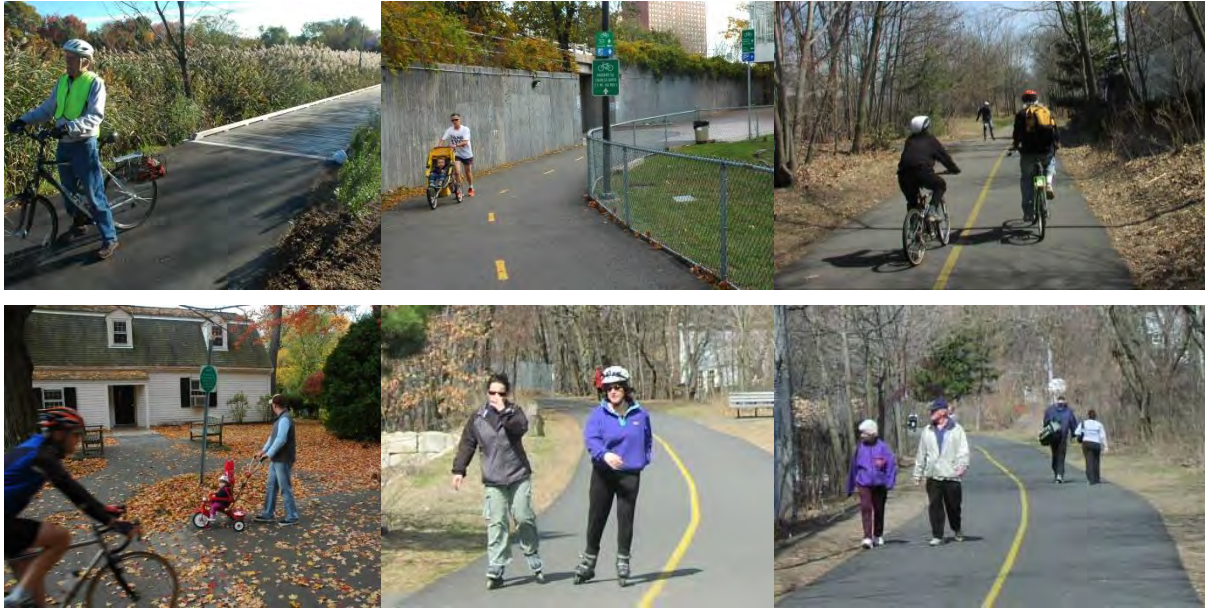
- Bicyclists of various skill levels including children, novices, and experienced cyclists, using standard bicycles, tandems, recumbents, bicycle trailers and “trail-a-bikes.”
- Pedestrians including children, the elderly, disabled persons in wheelchairs or electric scooters, people pushing strollers, dog walkers and others.
- Runners and joggers.
- In-line skaters, push scooters, skateboards, etc.

Common trip purposes include transportation to and from work and school, and natural, cultural and historic sites; running errands; shopping; visiting friends; attending events; and gaining access to entertainment venues. Intermodal trips are enabled by the trail’s access to the Alewife MBTA station and many MBTA bus routes/ stops.



A complete breakdown of the various user types and trip purposes reported in the Minuteman Online Survey is included in **Appendix A: Public Outreach**.

## Bikeway Users



# Level of Service for the Minuteman Bikeway

MAPC conducts annual counts along the Minuteman Bikeway.<sup>1</sup> Between May 7<sup>th</sup> and May 14<sup>th</sup>, 2013, 12-hour counts were conducted over a weekend and week day along the Bikeway at Swan Plan in Arlington and at the Lexington Depot. Weekday peak hour counts were also conducted in Arlington/Cambridge near the Alewife MBTA station.

- The Arlington/Cambridge location had the highest total hourly count of users with a total of 630 people including 374 pedestrians from 8 – 9 AM on a Tuesday.
- The highest hourly count in Lexington occurred on a Sunday afternoon with 409 bikes and 101 pedestrians, in addition to 24 joggers, 5 inline skaters and 16 baby carriages.
- The peak hour in Arlington occurred on a Tuesday from 6 – 7 PM with 202 bikes, 57 pedestrians, 34 joggers, 10 inline skaters and 5 baby carriages.
- Bicycles volumes peaked during traditional commute times while walking numbers were more consistent across different times of the day.
- On average, pedestrians represented a higher percentage of users in Arlington at 50 to 60 percent of all users, than in Lexington where pedestrians accounted for approximately 30 percent of users.

The degree of comfort and congestion for people using shared use paths can be estimated using the Federal Highway Administration's Shared Use Path Level of Service (LOS) Calculator. Developed through research, observation and user surveys of existing paths, the calculator considers the path design and volume of different types of users.<sup>2</sup>

LOS for the Minuteman Bikeway varies by day of the week, time of day and segment of the bikeway. On peak hours during both weekdays and weekend days, LOS was a C or below, with the exception of the peak hour on Tuesday in Lexington, which was a low-scoring LOS B.

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<sup>1</sup> The database can be found here: [http://www.ctps.org/apps/bike\\_ped4/bike\\_ped\\_query.html](http://www.ctps.org/apps/bike_ped4/bike_ped_query.html)

<sup>2</sup> The calculator and user guide are available online here:  
<http://www.fhwa.dot.gov/publications/research/safety/pedbike/05138/>





Level of Service for the Minuteman Bikeway <sup>3</sup>			
	Arlington Swan Place	Lexington Lexington Depot / East of Hancock St / Meriam St / Station Way	Arlington/Cambridge North of Route 2 / Alewife Station
<b>Peak Hour Weekday</b>	C (3.31)	B (3.52)	F (1.49)
<b>Peak Hour Weekend</b>	C (3.30)	D (2.58)	Not available

## Wayfinding and Signage

Wayfinding and signage along the Bikeway is an important amenity to users, providing location and directional information as well as interpretive information. Over time, different organizations and government agencies have installed wayfinding and interpretive signage of various design styles. Signage locations are not predictable and the signs are not always maintained, resulting in limited legibility in some cases. 44 information signs and kiosks were inventoried along the Bikeway. The following table illustrates some examples of the variety of existing signage on the Bikeway.

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<sup>3</sup> The Minuteman Bikeway ranges in width from 10 to 12 feet. The LOS calculations shown here are conservative estimates assuming a 12-foot width. Actual LOS may be lower in areas where the Bikeway is less than 12 feet wide.



## Existing Signage on the Bikeway

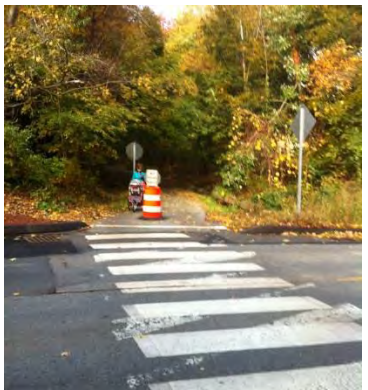




# Physical Conditions and Trail Design

The Bikeway surface is asphalt pavement that ranges widely in condition. Field observations and public comments indicate that many areas exhibit root breakthroughs which create hazardous conditions for bicyclists and inline skaters, especially during periods of low light. Gates, bollards, rumble strips, fallen leaves, and restricted sight distance create additional hazards for bicyclists.

## Physical Hazards on the Bikeway



# Bikeway Amenities

The Bikeway offers amenities for commuters and recreational users, including bathrooms, benches, drinking fountains, and trash receptacles. The results of the inventory indicate that amenities are not evenly distributed and sometimes challenging for users to locate. Amenities must be immediately adjacent to the Bikeway to be included in the inventory.

## Amenities on the Bikeway

- |                    |                        |
|--------------------|------------------------|
| • 2 restrooms*     | • 8 drinking fountains |
| • 37 benches       | • 19 trash receptacles |
| • 5 tables         | • 2 dog bag dispensers |
| • 17 bicycle racks | • 10 lamp posts        |

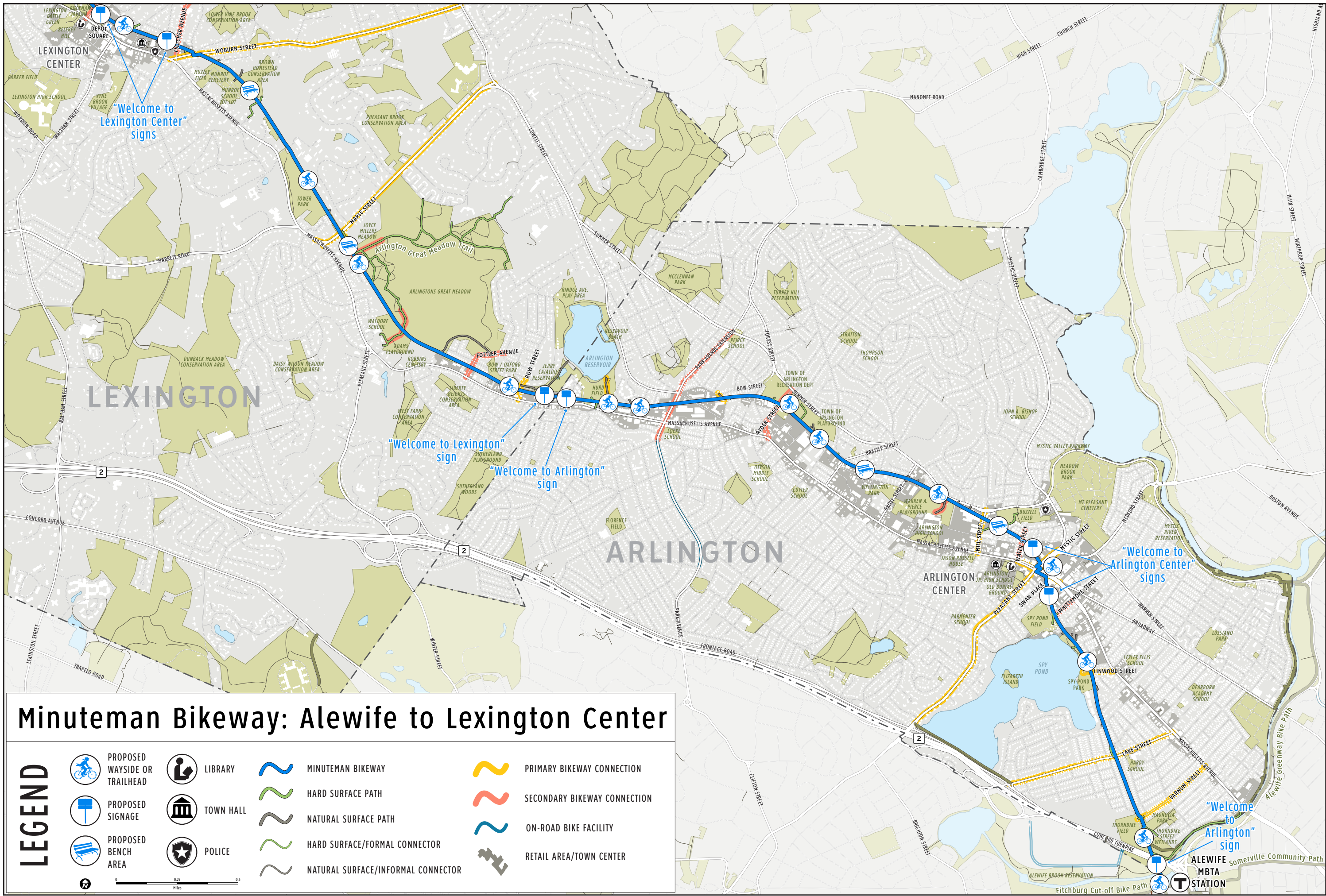
\*Note: Volunteer inventory did not identify the restroom located at the Lexington Visitor's Center, potentially indicating that signage is needed to create awareness of this facility location. Although additional restrooms are located near the Bikeway, such as inside Trader Joes, agreements with the business owners would be needed to include those locations on wayfinding signs and maps.

## Connections to Town Centers, Commercial Corridors, and Neighborhoods

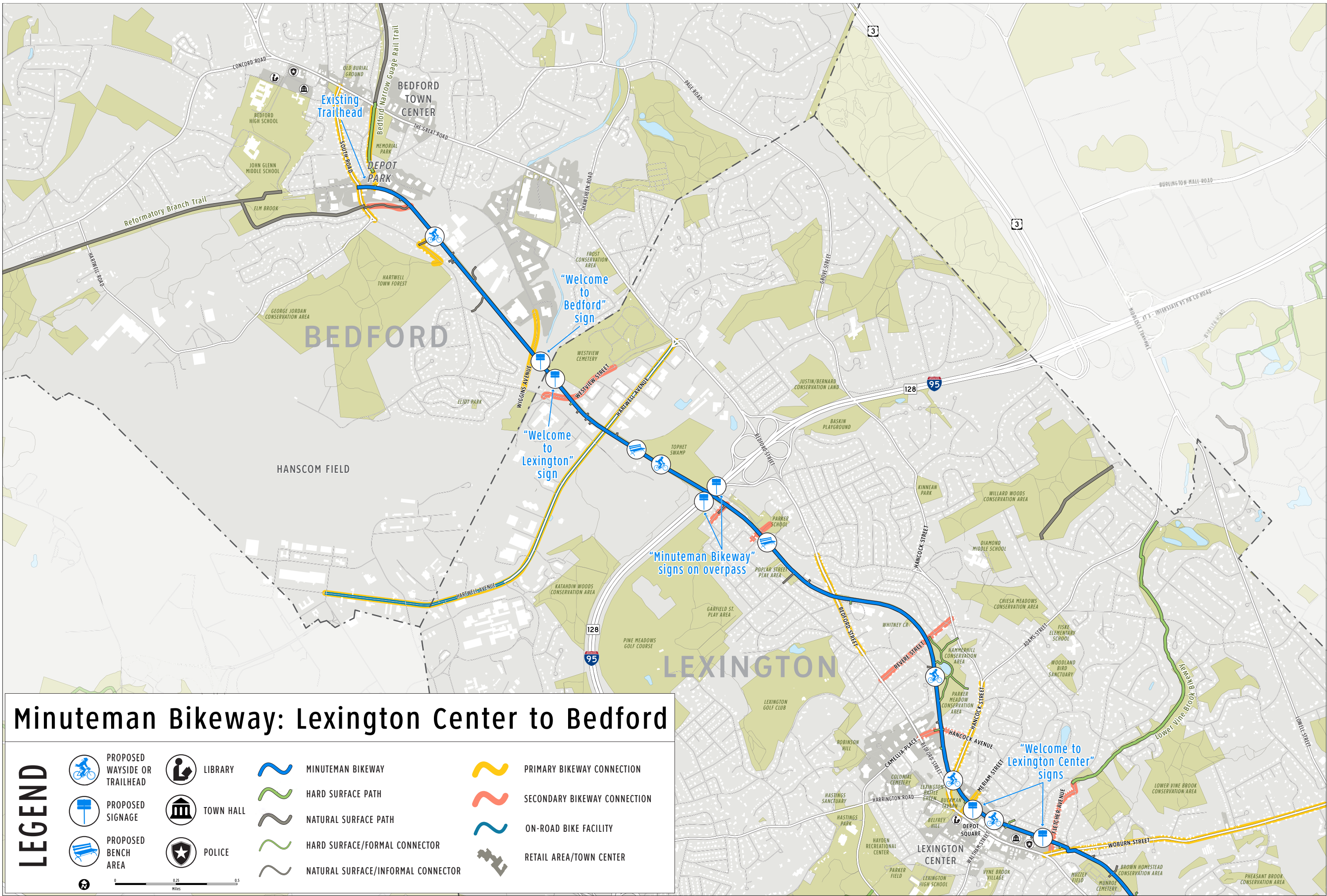
A total of 174 connections to the Bikeway (both formal and informal) were identified in Arlington, Bedford, and Lexington. Connections varied from footpaths to formal trailheads and provide additional opportunities to connect Bikeway users to local neighborhoods.

18 primary connections to town centers and commercial corridors have been identified along the Bikeway, presenting opportunities to draw traffic to retail areas in these towns. 24 secondary connections were also identified. Secondary connections are other points of access to the Bikeway, often connecting to side streets or small parks. These connections are illustrated in Appendix D. Recommended improvements to these connections are described in the following sections.









### 3. Wayfinding and Signage Recommendations

Existing Condition	Principle	Recommendation and Benefits
A wide variety of signs and mile markers exist along the Bikeway.	Establish consistency in signage along the Bikeway	Providing consistency through signage will create a unified feel to the entire Bikeway and help people readily identify the information they may need.
Many amenities exist in the Town Centers near the Bikeway, but are often unknown to Bikeway users.	Direct Bikeway users to Town Centers	Providing Wayfinding to Town Centers will attract Bikeway users to businesses, strengthening the economic impact of the Bikeway.
The existing granite mile markers along the Bikeway do not provide adequate distance information to Bikeway users, and in some case the information they provide is incorrect.	Improve location signage including at intersections and Bikeway connections.	Providing legible signage and location information and signage will improve the Bikeway experience and improve emergency response.
There is a lack of consistency in branding along the Bikeway.	Provide consistent Minuteman branding along the Bikeway	Use of the Minuteman Commuter Bikeway logo on signage along and approaching the Bikeway will strengthen the identity of the Bikeway.
A desire to limit the amount of signing on the Bikeway has been identified by the public.	Avoid over-signing the Bikeway	Providing signs only where most effective will provide the necessary Wayfinding without detracting from the natural setting of the trail.

Additional signs should be installed to provide important safety information including intersection warnings, wayfinding, trail and user restrictions and other right of way information. Comments from the public indicate a desire to limit the amount of overall signage on the Bikeway to preserve its natural character.

The following section illustrates recommended signs with usage guidance and conceptual renderings.



## Wayfinding Signs

### *Destination Signs on Bikeway*

Destination signs are recommended for placement on the Bikeway at primary connections to direct users to destinations near the Bikeway. Signage should include directional arrows, destination names, symbols for any amenities at the destination, and distances. Signage at town lines may include the identity of the town. All signs on the Bikeway should have reflective surfaces for visibility.

### *Recommended locations*

Primary connections to the Bikeway.





## ***Mile Markers***

The existing granite mile markers are difficult to interpret and in some cases not accurate. These markers should either be relocated and updated for legibility and accuracy or replaced with context sensitive mile markers. The markers, which were installed with the development of the bikeway, reference railroad history but are not historic themselves.

In addition to mile markers, signage with location information or street sign names at intersections and trail connections will help orient Bikeway users. Signs indicating cross streets and trail connections, even if they do not intersect the trail may also be useful for emergency responders who are familiar with local streets and provide context for Bikeway users. Town identities can be incorporated into the signs if desired.

Comments from the public indicate a desire to limit the number of signs on the Bikeway. If mile markers are incorporated, they should be installed on wayfinding or other signage where feasible to reduce the number of sign posts along the Bikeway.

## ***Recommended locations***

Mile markers should be placed at ½ mile intervals.

## ***Signs Approaching Bikeway***

Wayfinding signs are recommended to direct users to the Bikeway near primary connections and trailheads. These signs should include directional arrows, the Minuteman logo and name, and distance to the Bikeway. The three towns should work together to create uniform signs that complement existing street signs.

## ***Recommended locations***

Wayfinding signs should be placed on streets and roadways that are desirable pedestrian and bicycle routes leading to Bikeway entrances. Signs identifying the Bikeway should be included at all crossing locations.



**Example Wayfinding Sign Directing  
Directing Users to the Bikeway**

## Etiquette Signs

Etiquette signs remind trail users of courtesy on the road, especially in areas on conflicts. Detailed etiquette signs should include all areas of trail use etiquette such as “Keep right, dispose of dog bags in dog bag containers, Keep headphone volumes low in order to hear approaching cyclists,” etc. It is recommended to provide only the most important information at regular intervals such as shown on the sign to the right—simple signs should emphasize that all users should be cognizant of the presence of two-way traffic on the Bikeway and that users are responsible for keeping right and being courteous towards other users. Large amounts of information should be limited to trailhead locations because users are unlikely to stop to read the signs.

## Recommended locations

Detailed etiquette signs should be included on information kiosks at trailheads. Passing etiquette signs should be included on the bike trail approaching areas of low visibility or areas known for potential conflicts.



Example Etiquette Sign For Use on Bikeway



Example Etiquette Sign For Use at Trailheads

## ***Maps***

Bikeway maps should be displayed at all trailheads, major access points, and waysides. Maps should include locations of amenities, including bathrooms, road names, and mileage. “You Are Here” labels should also be placed on the map to orient the user.

## ***Recommended locations***

On the trail at Thorndike Field, Arlington Reservoir Connection, Fletcher Avenue, and at recommended trailhead and wayside locations identified in Chapter 5: Trailhead and Wayside Recommendations.

## ***Mobile Technology***

Town agencies should consider incorporating mobile wayfinding to improve navigation. Suggestions for developing navigational tools include holding a contest to create a mobile app for the trail which may include historic content, maps, and local amenities / events and encouraging current mapmakers to issue a mobile version (including PocketRides, Mass Bike). A Minuteman Commuter Bikeway map is currently available on the mobile application “Maplets.” The mobile applications should be advertised through emails, newsletters, and websites.

GIS inventory data compiled for this project could be used as a starting point to create a mobile application.



## 4. Intersection Improvement Recommendations

Design of each intersection using best practices is key to ensuring trail users are able to use the space as safely and comfortably as possible. In general, intersections should be improved utilizing the trail/roadway crossing details in the *American Association of State Highway Transportation Officials Guide for the Development of Bicycle Facilities, 4<sup>th</sup> Edition (AASHTO Bike Guide)*. Improvements such as curb ramps, crosswalk markings, street and Bikeway signage, and accessible pedestrian crossing signals are the types of features needed at many of the proposed intersections to address site specific issues.

Existing Condition	Principle	Recommendation and Benefits
Many intersections along the Bikeway have been identified by the public as dangerous and difficult to cross.	Improve safety for all users	Improving the intersections will increase the safety of the Bikeway and provide a better Bikeway experience.
Inconsistency in intersection signing and pavement marking can decrease awareness and lead to safety issues.	Provide predictable context-sensitive intersection treatments along the Bikeway	Providing consistency to each intersection will increase awareness and improve safety.
Uncertainty in responsibility between motorists and Bikeway users presents safety concerns.	Provide clear directions for all users	Clearly signing and marking intersections improves expectations and communicates responsibility for all users.
Currently, Bikeway users are required to stop at every intersection, leading to many Bikeway users ignoring the stop signs.	Provide the least intersection control that is effective	Providing stop signs only where necessary will help increase compliance and improve safety.
Intersections are popular and convenient places for Bikeway users to wait for groups to catch up or to meet others, causing congestion.	Create gateway treatments at intersections	Creating attractive places for people to wait off the trail will improve traffic flow and enhance the Bikeway entrances.

### Intersection Treatments

Routine use of stop signs intersections along the Bikeway may contribute to poor compliance. Bicyclists tend to operate as though intersections are controlled by yield signs. The following is a list of potential intersection treatments and criteria for determination of suitability. Control type for each intersection along the Bikeway should be determined on an individual basis by each Town after a detailed engineering analysis of speeds, sight distance, etc.



### *Yield Control for Bikeway Users*

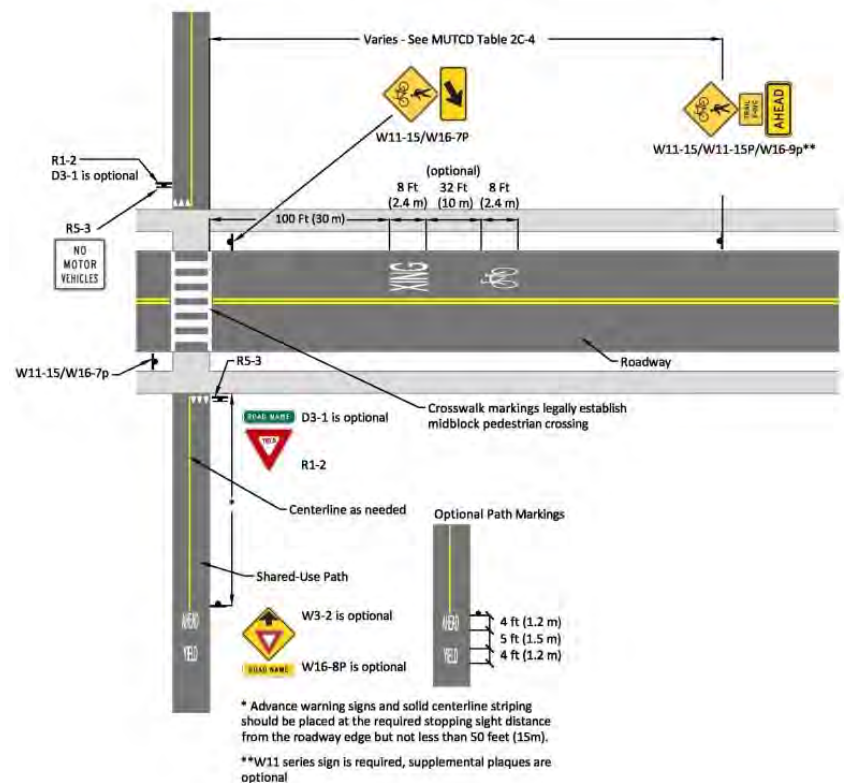
Bikeway users reduce speed and prepare to stop, but may continue if no traffic is present.

#### *Criteria for Suitability:*

- Roadway Volumes > Bikeway Volumes
- Lower Speed Roadways
- Adequate Sight Distance Between Roadway and Bikeway

#### *Potential Candidates:*

Revere St, Fottler Ave, Fletcher Ave, Wiggins Ave



Source: AASHTO Guide for the Development of Bicycle Facilities

## Stop Control on Bikeway

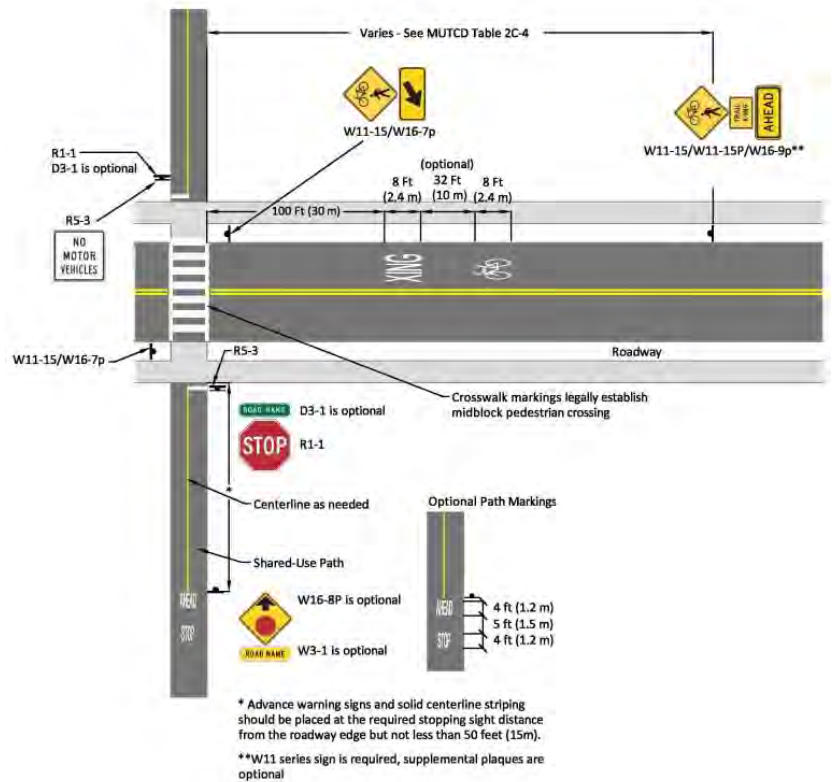
Bikeway users stop at intersection and continue when no traffic is present or traffic has stopped for them.

### Criteria for Suitability:

- Roadway Volumes > Bikeway Volumes
- Higher Speed Roadways
- Limited Sight Distance Between Roadway and Bikeway

### Potential Candidates:

Bow St, Westview St



Source: AASHTO Guide for the Development of Bicycle Facilities

## Yield Control on Roadways

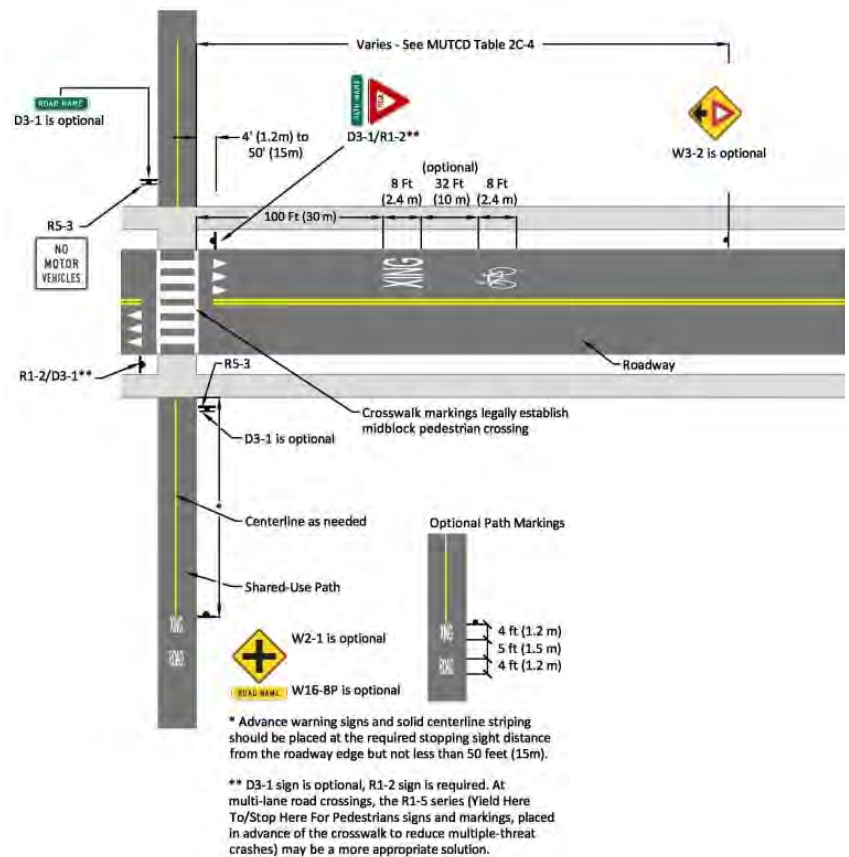
Motorists reduce speed and prepare to stop, but may continue if no Bikeway traffic is present.

### Criteria for Suitability:

- Bikeway Volumes > Roadway Volumes
- Lower Speed Roadways
- Adequate Sight Distance Between Roadway and Bikeway

### Potential Candidates:

Whittemore St, Pond Ln, Linwood St



Source: AASHTO Guide for the Development of Bicycle Facilities

## Stop Control on Roadways

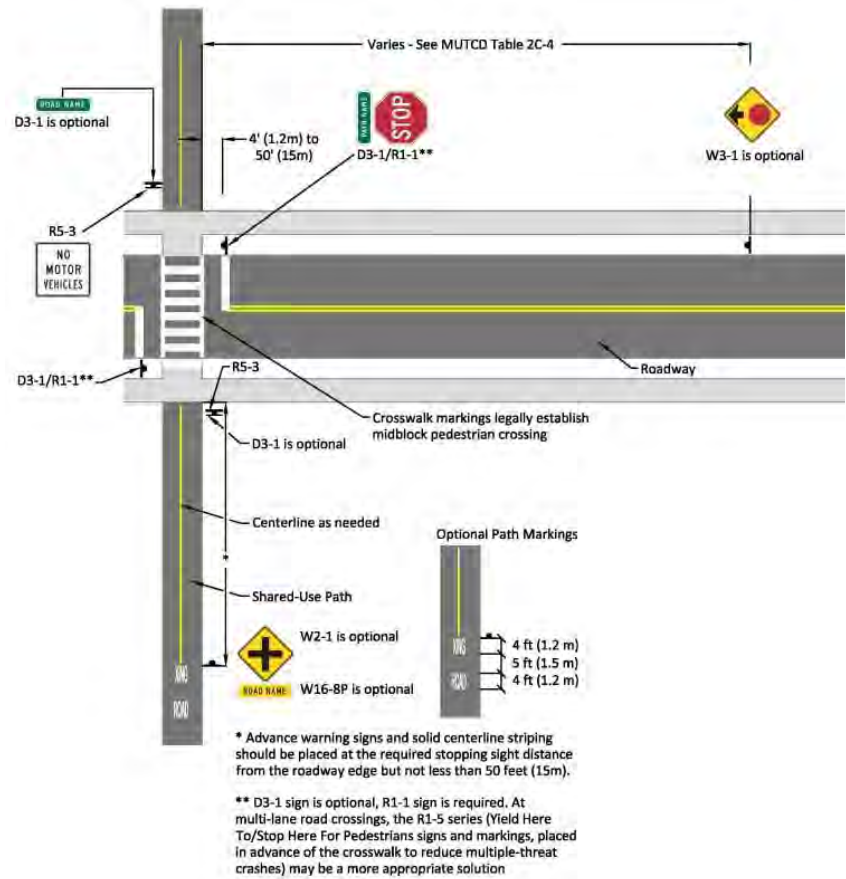
Motorists stop at Bikeway crossing and continue if no Bikeway traffic is present.

### Criteria for Suitability:

- Bikeway Volumes > Roadway Volumes
- Lower Speed Roadways
- Private/Commercial Driveways

### Potential Candidates:

Seasons 4 Driveway, Lexington Town  
Center Parking Lot Driveway



Source: AASHTO Guide for the Development of Bicycle Facilities



## ***Accessible Crossings***

Pedestrian activated signals with push buttons should be located between 5 and 6 feet from the curb to meet MUTCD requirements and should accommodate hand-cycles, bicycle trailers, recumbents and other similar cycles. Consider bicycle detectors to eliminate the need for a push button to allow cyclists to cross the street without dismounting or encroaching into the street. Audible features should also be considered at crossings to accommodate persons with vision impairments.

### ***Criteria for Suitability:***

- Signalized intersections

### ***Potential Candidates:***

All signalized intersections



### ***Traffic Signal/Beacon on Roadways***

Motorists stop or yield for Bikeway users after signal is activated by push-button or detection on the Bikeway. For intersections not meeting MUTCD signal warrants, flashing beacons such as a High-Intensity Activated Crosswalk Beacon (HAWK) or a Rectangular Rapid-Flashing Beacon (RRFB) should be considered.

#### ***Criteria for Suitability:***

- Limited Sight Distance Between Roadway and Bikeway
- Higher Speed, Higher Volume Roadways
- Known Safety Concerns
- High Volume Bikeway Crossing
- Meets MUTCD Signal Warrant (Signal)

#### ***Existing Intersections:***

Hartwell Ave, Bedford St, Mill St

#### ***Potential Candidates:***

All midblock crossings of high speed, high volume streets that are difficult to cross.



*Example Rectangular Rapid Flashing Beacon*

### ***Advance Yield Lines***

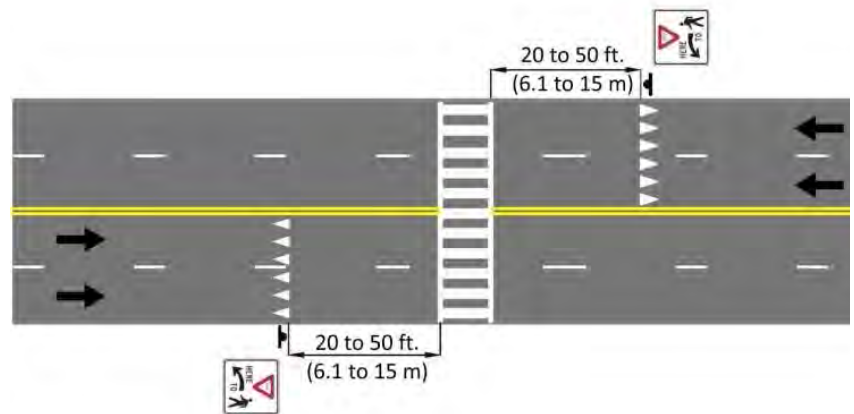
Provide direction to motorists to yield in advance of Bikeway crossing to increase visibility between motorists and Bikeway users. These lines have been shown to reduce “multiple threat” crashes where one stopped vehicle blocks visibility of path users for a vehicle traveling in the adjacent lane. “Yield to Pedestrians” signs (MUTCD Sign R1-5) should be added to provide additional guidance on the yielding location.

#### ***Criteria for Suitability:***

- Intersections with multi-lane streets

#### ***Potential Candidate:***

Mill St



Source: AASHTO Guide for the Development of Bicycle Facilities

### ***Improved Intersection Lighting***

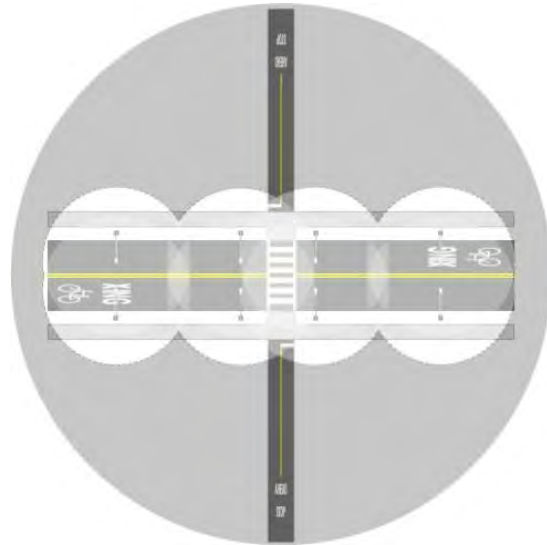
Improves the visibility of Bikeway users at crossings, increasing safety. This is especially important because nearly half of survey respondents reported using the Bikeway at night (see **Appendix A: Public Outreach**).

#### ***Criteria for Suitability:***

- Primary connections to the Bikeway
- Intersections with low visibility

#### ***Potential Candidates:***

All intersections of the Bikeway and all primary connections



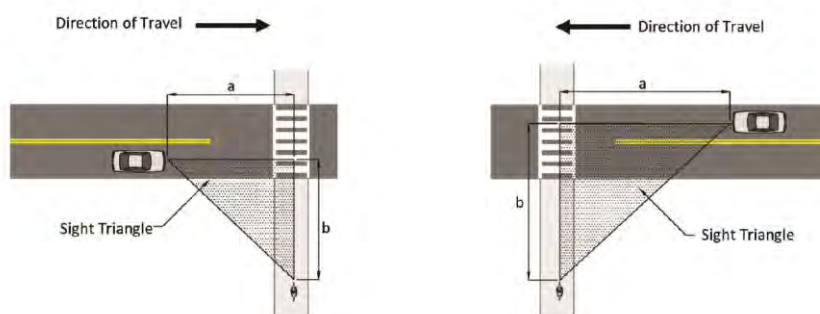
Source: AASHTO Guide for the Development of Bicycle Facilities

## Sight Distance

Intersection sight distance, also referred to as a sight triangle, is a fundamental component in selecting the appropriate intersection control along the Bikeway. Bikeway and roadway users should have adequate sight lines to provide an unobstructed view of the entire intersection and a sufficient amount of the intersecting facility to anticipate and avoid a potential collision with crossing traffic, regardless of the intersection control.

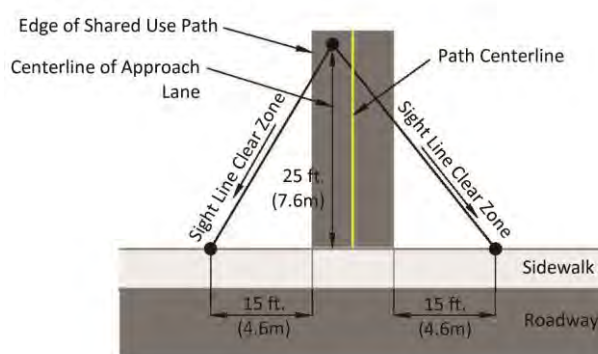
Approaches to yield-controlled intersections should provide the recommended approach sight triangle, or else a more restrictive control should be considered.

Regular maintenance of vegetation to maintain sight distance is also a key consideration for visibility on the Bikeway. See **Section 9: Maintenance** for details.



### *Yield Sight Distance Triangles Between Motorists and Bikeway Users*

Source: AASHTO Guide for the Development of Bicycle Facilities



### *Minimum Path-Walkway Sight Distance Triangles (Recommended at every sidewalk and pathway intersection)*

Source: AASHTO Guide for the Development of Bicycle Facilities

### ***Trail Crossing Signs at Roadways***

Alerts motorists of trail crossing, giving them adequate time to prepare to yield to Bikeway users. Trail crossing signs should be supplemented with a Minuteman Commuter Bikeway sign to identify the Bikeway.

### ***Recommended locations***

On roadways at all midblock trail intersections





## Roadway and Sidewalk Conditions Approaching the Bikeway

Roadways and sidewalks leading to the Bikeway should accommodate bicyclists and pedestrians and should be regularly maintained. Where feasible, Town agencies should include bicycle facilities on streets that serve as connections to the Bikeway. Safe and convenient access to the Bikeway will likely reduce the demand for additional parking and better incorporate the Bikeway into the larger transportation system.

## Pavement Markings

Pavement markings support safe use of the Bikeway by providing visual cues and guidance to users.

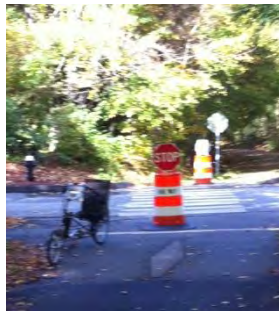
- **Edge Striping:** Edge striping helps users easily identify the edges of the trail which can be obscured by dirt, fallen leaves, and other debris. This is especially important in areas where a drop-off at the edge exists, as observed in some areas along the Bikeway. Where lighting is not provided, or only provided during certain hours, reflective edge lines may be beneficial. Edge lines may also be considered at approaches to intersections to alert path users of changing conditions, but only if they are not provided throughout the Bikeway.
- **Center Lane Marking:** Center lane markings remind users to walk or cycle on the right side of the road. During periods of low traffic, it is important to remind users that the Bikeway is a two-way trail. Center lines should typically be dashed, except in areas with low visibility, high volumes, narrow bridges, or other areas where passing is discouraged. In these areas, centerlines should be solid to indicate a “no-passing zone.”
- **Curve Warning:** Pavement curve warnings, such as “CURVE AHEAD” are typically more visible than wayside signage when not obscured by leaves or other debris. Curve warnings provide important information to bicyclists to help avoid collisions or falls. They should be considered at locations such as Woburn Street where sharp curves exist.
- **Intersection Warning:** Pavement markings to indicate upcoming stops help prepare cyclists for intersections where they are required to stop. In areas of limited sight distance or where there is a history of crashes, advance intersection warning pavement markings should be considered.

## Access Control

Gates and bollards along the Bikeway consist of various designs (see below) to prevent motor vehicles from driving onto the trail. While often installed with the intent of protecting trail users, bicyclists are more likely to sustain injuries from colliding with a gate or bollard than from colliding with an automobile driving onto the path. Existing bollards and gates should be removed and future gateways should be designed without these features. Split entry points that separate entering and exiting traffic with a landscaped island create an aesthetic gateway treatment, effective at deterring motor vehicle traffic from entering the Bikeway. Waiting areas should also be incorporated at access points to reduce congregating on the Bikeway. For entrance points with a history of vehicles entering the Bikeway, a “No Entry” sign may be installed and evaluated for effectiveness. If signs and split intersection treatments are not enough of a deterrent, gates (not bollards) may be used provided these gates do not encroach on the Bikeway when in the open position.

Gateways should incorporate landscaping, pavement treatment, or signage to serve as a visual cue that the Bikeway is approaching an intersection. Any treatment must be designed so as not to limit visibility.

### Existing Bollards and Gates Along the Bikeway



## 5. Trailhead and Wayside Recommendations

Existing Condition	Principle	Recommendation and Benefits
The public has shown a strong desire to have additional amenities along the Bikeway.	Provide convenient amenities along the Bikeway.	Providing frequent places to rest and opportunities to obtain water and use a restroom will improve the Bikeway experience, especially for recreational users.
Very few developed waysides and trailheads exist along the Bikeway.	Provide waysides and trailheads at key places along the Bikeway.	Including waysides and trailheads regularly along the Bikeway will provide resting places and additional access points for visitors driving to the Bikeway.
There is a strong desire for clarification and communication of rules and responsibilities for Bikeway users.	Provide information about Bikeway rules and responsibilities to reduce conflict among users.	Providing educational information will help reduce conflicts between Bikeway users.
Existing trailheads and entrances to Town Centers lack character and prominence.	Enhance the Bikeway through gateway treatments.	Enhancing the Bikeway through gateway treatments will provide a sense of arrival upon entering Town Centers and at trailheads.

### Trailheads and Waysides

At focal areas along the trail, waysides should be created to provide occasional areas for users to pull off and enjoy the areas of interest around the trail, or simply to have a place to rest. Trailhead gateways should serve to identify key access points and landmarks with informational kiosks and aesthetically pleasing nodes of interest by incorporating art or landscape elements.

Waysides should range in the intensity of amenities offered. For the purposes of this plan, three levels of accommodation are recommended. At the low end, **Level 1 waysides** include amenities that serve as a spot to rest and find information. **Level 2 waysides** include additional amenities such as drinking fountains and bicycle racks. **Level 3 waysides** include tables with seating, restrooms, additional lighting, and other amenities. **Trailheads** should include the suggested amenities for Level 3 waysides with the addition of vehicular parking. These are described in more detail in the following section. The types of trailheads and waysides should be distributed relatively evenly to create predictable locations for the amenities desired by users. Suggested locations for trailheads and waysides are also included in the following table.



Wayside Level	Purpose	Suggested Amenities	Proposed Locations*	Sample Waysides
1	These minimalistic waysides should be located regularly along the Bikeway to offer frequent opportunities to rest and obtain location information.	<ul style="list-style-type: none"> <li>• Information kiosk</li> <li>• Bench</li> <li>• Interpretive signs**</li> <li>• Lighting</li> </ul>	<ul style="list-style-type: none"> <li>• Between the Bedford Town line and Bedford Street in Lexington</li> <li>• Between Woburn Street and Joyce Miller's Meadow in Lexington</li> <li>• Between Brattle Street and Pleasant Street in Arlington</li> </ul>	
2	Enhanced waysides should be located in proximity to popular walking and hiking areas and near town centers.	<ul style="list-style-type: none"> <li>• Information kiosk</li> <li>• Interpretive panel</li> <li>• Bench</li> <li>• Lighting</li> <li>• Trash/recycling receptacle</li> <li>• Bicycle rack</li> </ul>	<ul style="list-style-type: none"> <li>• Joyce Miller's Meadow/ Arlington's Great Meadow</li> <li>• Town of Arlington Playground</li> <li>• Arlington Reservoir Area Playground</li> <li>• Parker Meadow Cons. Area</li> <li>• Tophet Swamp Cons. Area</li> <li>• Warren A. Pierce Playground</li> <li>• Spy Pond Park</li> <li>• Tower Park</li> <li>• Bow/Oxford Street Park</li> </ul>	
3	High quality trailheads and waysides should be located at primary parking locations and in each community to provide additional opportunities to obtain water and use a restroom.	<ul style="list-style-type: none"> <li>• Information kiosk</li> <li>• Interpretive panel</li> <li>• Bench</li> <li>• Lighting</li> <li>• Trash/recycling receptable</li> <li>• Bicycle rack</li> <li>• Bicycle repair station</li> <li>• Tables with seating</li> <li>• Drinking fountain</li> <li>• Restroom</li> <li>• Dog bag dispenser</li> <li>• Public art and civic design</li> <li>• Motor vehicle parking (where feasible)</li> </ul>	<ul style="list-style-type: none"> <li>• Lexington Depot and/or Lexington Visitor Center</li> <li>• Hurd Field Parking Lot</li> <li>• Mystic Street, Arlington</li> <li>• Spy Pond Park</li> <li>• Arlington Recreation Department</li> </ul>	

\*Site of proposed new location. Other locations refer to existing locations.

\*\* Interpretive signs should be located at sites of historic elements or trail features, not limited to waysides

# Amenity Design

## Site Furniture General Guidelines

Site furniture is recommended along the trail corridor, particularly at trailheads, waysides and other areas of interest for Bikeway users. All furnishings should be made of durable materials. Stone (granite) or metal rather than wood furnishings are recommended because wood can splinter or burn. Where possible, recycled materials should be used. Metal furniture, if used, should be painted a solid, standard color (such as black) for ease of maintenance and to resist vandalism. In general, when placing site furniture along the Bikeway, benches, tables, trash and recycling receptacles, bike racks and other furnishings should be placed at least 3 feet away from the trail.

## Existing Amenities

- 2 restrooms
- 37 benches
- 44 information signs and kiosks
- 5 tables
- 17 bicycle racks
- 8 drinking fountains
- 19 trash receptacles
- 2 dog bag dispensers
- 10 lamp posts

Please refer to **Appendix D: Heat Maps** for inventoried locations of existing amenities along the Bikeway.

## Level 1 Waysides

Level 1 Waysides are intended to provide basic amenities for Bikeway users and be located frequently along the Bikeway. They provide resting areas and offer a great opportunity to provide interpretive and informational signs. Level 1 Waysides should also include the following:

### Benches

A total of 37 benches were inventoried along the length of the Bikeway. Benches ranged widely in style and accessibility. Distribution is generally pretty good near the Town centers, but is lacking outside of those areas. Benches should be distributed frequently along the Bikeway to provide resting places. Additional benches are recommended at the following locations:

- Between the Bedford Town line and Bedford Street in Lexington
- Between Woburn Street and Joyce Miller's Meadow in Lexington
- Between Brattle Street and Pleasant Street in Arlington

Benches should accommodate all users. The bench seat should be between 16 and 18 inches above the ground, with handrails at the end between 6 and 12 inches above the seat. The depth of the seat should range between 18 to 20 inches with a width varying between 24 to 30 inches allotted per person. There should be a clear level space where a person using a wheelchair can rest adjacent to seated





people. This area must be at least 30 by 48 inches and should be located adjacent to the benches. Benches should be positioned on an accessible surface with an accessible walk to the seating area.

## Interpretive Panels / Information Kiosks

Interpretive panels and information kiosks should be located intermittently along the Bikeway to enhance the user experience, provide a reason to stop, and embrace the areas rich history.

Recommended content includes:

- Geologic/natural history
- Colonial history
- Railroad history
- Recent history

Interpretative signage provides users with objective information about trails, such as trail symbols, length, direction, rules, surface type and accessibility. Signs may also include an area map and timeline of events related to the trail to provide additional context.

Signage design should be chosen based on long-term maintenance needs, and have a design theme consistent with other Bikeway amenities and signs. When choosing materials and design, graffiti removal and vandalism control should be a key consideration. Like directional signs, informational signage must meet the most current ADA guidelines including a 42-inch minimum space between other protruding objects.

Potential locations for additional interpretation kiosks include historic sites such as:

- Lexington Battle Green
- Lexington Depot
- Arlington Heights Station

Information kiosks with maps should be located at major entry points to the trail.



Figure 1: Conceptual Interpretive Sign



Figure 2: Conceptual Information Kiosk

## *Lighting*

Lighting elements of the trail serve a decorative function, accenting landscaping concepts, landmarks, artwork, etc., as well as providing for functional illumination and security of the trailheads during the evening and dusk hours. Through the use of appropriate lighting concepts, the trail can be a focal point that is integrated into the existing neighborhoods and streetscapes, providing an interesting transition for users from the surrounding streetscape onto the trail. By maximizing the use of energy efficient and self-sufficient lighting systems, lighting elements become an integral part of the landscape concept, adding to the users overall trail experience.

The design and material of lighting should be consistent with the design of other site amenities, and be scaled for pedestrian use. Lighting levels should comply with local ordinances and should have cut-offs to shield lighting from adjacent properties. LED and solar-powered lighting is a good option that is ultimately less expensive to operate. As with other site amenities, lighting should be tamper resistant and made to withstand vandalism.

Recommended locations for lighting include:

- Waysides
- Near town centers where high foot traffic is anticipated
- Intersections

To preserve the natural setting of the Bikeway, lighting should not be incorporated along the entire length of the path.



## Level 2 Waysides

Level 2 Waysides are intended to provide additional amenities for Bikeway users, located less frequently along the Bikeway. Recommended locations are near natural areas, playgrounds, and parks where users may wish to park their bicycles and enjoy a hike in a natural area, play on playground equipment, or just relax. In addition to the amenities described in Level 1 Waysides, Level 2 Waysides should also include the following:

### ***Bike Racks***

17 bike racks were inventoried along the Bikeway, generally located near the Town centers. Bike racks should be located at trailheads, recreation areas, parking areas, commercial areas, and as close as possible to destinations without interfering with traffic flow (this includes the space needed for a locked bicycle). Recommended locations for additional bike racks include:

- Joyce Miller's Meadow/Arlington's Great Meadow
- Town of Arlington Playground
- Arlington Reservoir Area Playground
- Parker Meadow Conservation Area
- Tophet Swamp Conservation Area
- Warren A. Pierce Playground
- Spy Pond Park
- Tower Park
- Bow/Oxford Street Park



**Figure 3: Conceptual  
Minuteman Branded Bicycle Rack**

Stationary u-shaped and post racks are the most common, easy to use, and affordable option. These devices allow cyclists to lock both the wheels and the frame as well as move bicycles into and out of the racks with minimal effort and damage. The location of a rack should be well lit and visible to prevent theft, and be protected from the elements with a roof if possible.

### ***Trash and Recycling Receptacles***

19 trash and/or recycling receptacles were inventoried along the Bikeway. These were primarily located near Town centers and also at Revere Street and Bow Street in Lexington. Trash and recycling receptacles should be located throughout trail corridor to reduce littering. Recommended locations for additional trash and recycling receptacles include:

- Existing and future trail heads
- Existing and future picnic table locations
- Existing and future bench locations
- Existing and future dog bag dispensers

Receptacles should be of similar character as other site furniture, and be ADA accessible. Receptacles require a 30 to 48 inch clear space with an opening height of 15 to 36 inches. Lids must be hinged, tamper resistant, and any removable tops should be lockable. In areas with sufficient sunlight, solar compacting receptacles could be considered to reduce maintenance.

## ***Water Fountains***

Eight water fountains were inventoried along the Bikeway, primarily on the Lexington segment of the Bikeway. Water fountains should be located along existing water main lines. Assuming existing water facilities are in place, recommended locations for additional drinking fountains include:

- Waysides in Arlington, near Tower Park or the Great Meadow
- Level 3 waysides with heavy use

Each fountain should have an ADA-compliant design and ideally include a fountain for pets, since many users indicated using the Bikeway for dog-walking. If possible, new water fountains should employ a downward spout designed to fill water bottles in addition to an upward spout to allow users to drink directly from the fountain.

## Level 3 Waysides and Trailheads

Level 3 Waysides and Trailheads are intended to provide the highest level of amenities for Bikeway users, limited to a few locations along the Bikeway. Typical locations are near Town centers and parking lots where higher volumes of walkers can be expected as well as people beginning and ending a trip. Additionally, locations that provide high levels of visibility will be a deterrent from vandalism.

Recommended locations for Level 3 Waysides and Trailheads include:

- Lexington Depot and/or Lexington Visitor Center
- Hurd Field Parking Lot
- Mystic Street, Arlington
- Spy Pond Park
- Arlington Recreation Department

In addition to those described in Level 2 Waysides, amenities for Level 3 Waysides and Trailheads should also include the following:

### ***Restrooms***

One public restroom was inventoried near the trail, located at the Bedford Depot. An additional restroom is located adjacent to the Bikeway at the Lexington Visitor's Center but was not inventoried by volunteers, demonstrating the need for signage. Although additional restrooms are located near the Bikeway, such as Trader Joe's, agreements with the business owners are needed to include those locations on wayfinding signs and maps. Additional restrooms are recommended at major waysides. Wayfinding signs should be provided to direct Bikeway users to nearby restrooms located off the trail in areas where restrooms are not provided adjacent to the Bikeway.

### ***Tables***

Five tables were inventoried along the Bikeway, in Arlington Center, Bow/Oxford Street Park, and Lexington Center. Additional tables are recommended between Lexington Center and the Bedford Depot. Tables should be provided at waysides and general picnicking areas along the Bikeway. Tables should be made of durable materials, such as vinyl coated, expanded metal which require minimal maintenance, and should be secured to a paved, accessible surface so they are universally accessible. The height of the bench should be about 18 to 20 inches high with the table top at 30 inches high. The paved surface below the table should not have a slope greater than 2 percent in any direction and have an accessible path to the Bikeway. Trash and recycling receptacles should be located at all waysides with tables.

### ***Dog Bag Dispensers***

Two dog bag dispensers were inventoried near the Bikeway, both near the trail connection to Colonial Village in Arlington. Dog bag dispensers should be located throughout the trail corridor near popular access points for walking. Dispensers should be accompanied by trash receptacles to reduce the likelihood of full bags being left trailside due to lack of places to deposit them.





## ***Bicycle Repair Station***

Bicycle repair stations include air pumps and tools to perform basic maintenance on their bikes in the event of a flat tire or other damage. These repair stations add a level of comfort to trail users and are installed on many bike paths around the country.

## ***Public Art & Civic Design***

Throughout the Bikeway, public art and civic design elements are recommended for integration into the trail infrastructure and landscape. Trailheads, waysides, and similar locations provide significant opportunities to create a cohesive theme for the Minuteman Commuter Bikeway and the surrounding neighborhoods. Where possible, it is recommended that the art integration be coordinated with local community centers, schools, and citizen groups to encourage a greater “sense of ownership” of these features. Citizen involvement (particularly youth involvement) into the public art and civic design process increases citizen awareness of the Bikeway, encourages citizen investment into the maintenance and upkeep of the Bikeway, and illustrates local talent within the community. Public art should be placed at least 3 feet away from the trail. Maple Street Underpass may be a good candidate for public art.

## ***Motor Vehicle Parking***

Because many Bikeway users travel by motor vehicle to parking locations near the Bikeway, sufficient space should be available to accommodate these users. Parking locations should be identified on maps with signage provided on adjacent streets and the Bikeway directing motorists to and from the parking lots.

Existing parking locations that should be considered to include on maps and signage are:

- Alewife MBTA Station
- Arlington Center
- Arlington Recreation Department
- Bedford Depot
- Hurd Field
- Lexington Center
- Lexington Department of Public Works
- Mystic Street, Arlington
- Spy Pond Park



## 6. Partnership Recommendations

Existing Condition	Principle	Recommendation and Benefits
The Bikeway is maintained and operated independently by individual municipalities.	Increase collaboration between towns.	Increasing collaboration between the Towns will improve operations and reduce inefficiencies.
Conflicts between bicyclists and pedestrians on the Bikeway are common.	Reduce conflicts between users through education.	Providing education and outreach to Bikeway users will help reduce conflicts and increase compliance with the Bikeway rules.

### Town Coordination

Although most trail improvements can be made independently by each Town, several improvements would benefit from coordination between communities. Collaboration is recommended to improve operations and increase efficiencies. It is recommended that coordination between the Towns occur on the following items:

- Graphic standards for signage
- Placement of Bikeway signs on multi-jurisdictional streets leading to the Bikeway
- Outreach and communication
- Maintenance and clean up

### *Joint Powers Committee*

A Joint Powers Committee, such as that created to manage the North Idaho Centennial Trail (NICTF), could bring the neighboring communities together to make decisions that affect each Town and provide efficiencies in future maintenance and improvements. The intent would be to set standards and manage the Bikeway in a uniform way, from day-to-day maintenance to capital improvement projects. The Joint Powers Committee could adopt a trail maintenance plan approximately every five years. Each agency would be obligated through a Joint Powers agreement to contribute money into a capital improvements account (for example, the NICTF currently requires \$7,500 each, per year). Funds in the account could be used for planned and unplanned projects. These funds can also be used to fund or match funds for grant projects to improve the Bikeway. The committee should be comprised of one official from each municipality, meeting quarterly to semiannually. Additional consideration for the structure, funding and support of this committee will be necessary to determine feasibility. However the Town's bicycle advisory committees should continue to meet jointly on an annual basis, as well as maintaining open lines of communication, to ensure collaboration among the three towns regarding the Bikeway.

Other examples of trail systems with collaborative management include the Ohio & Erie Canalway (managed by the Ohio & Erie Canalway Coalition) and the Swamp Rabbit Trail in North Carolina (managed by the Greenville County Recreation District).

Additional information on maintenance agreements along with sample Memorandums of Understanding can be found on the Rail-to-Trails Conservancy website at:



### ***Event Permitting***

Requirements for event permits are different in each Town and securing a permit for event use requires contacting each Town individually. A collaborative effort between the Towns would improve the process and potentially reduce unsanctioned events. A website that includes the permit requirements, contact information, and an application would streamline the process for potential user groups.

### ***Community Support***

The communities along the Bikeway should continue to be called upon to support the trail through encouraging proper trail usage, organizing community clean-ups on the trail, and participating in local government activities related to the trail. The business community can support the trail by providing bicycle parking, maps of the trail, and discounts to customers arriving by bicycle.

### ***Procurement of Amenities***

To maintain consistency in the Minuteman Commuter Bikeway's identity, it is recommended that amenities throughout the length of the trail be of a uniform look. Procurement of many future amenities should be completed at one time to reduce costs and create uniformity. These include:

- Benches
- Signage
- Lighting
- Trash receptacles

### ***Habitat and Natural Resource Protection***

One of the valued characteristics of the Minuteman Commuter Bikeway is the natural setting that it provides, even while travelling through urbanized areas. Any construction must consider impacts on local habitat and natural resources to maintain the natural setting of the trail.

### ***Rules and Regulations***

Rules and regulations should be consistent on the Bikeway sections of all towns. Hours of operation should be consistent throughout the Bikeway. And, to better facilitate bicycle commuting, the Bikeway should remain open during evening hours.

## 7. Community Outreach Recommendations

Existing Condition	Principle	Recommendation and Benefits
Conflicts between bicyclists and pedestrians on the Bikeway are common.	Reduce conflicts between users through education.	Providing education and outreach to Bikeway users will help reduce conflicts and increase compliance with the Bikeway rules.

Education and outreach efforts should be increased to improve courtesy between users and reduce conflicts on the Bikeway. Education and outreach should be targeted toward both motorists and Bikeway users to clarify responsibilities at Bikeway crossings and encourage courtesy between users.

Education and outreach can take several forms. The following list includes effective methods of conveying information about proper trail use. This list serves as a starting point and is not exhaustive.

- **Press Releases:** Communicate key messages to motorists and Bikeway users throughout the year, especially in the spring and before events when Bikeway use is expected to increase.
- **Social Media:** Communicate key messages to Bikeway users through Facebook, websites, email distribution, Twitter, etc.
- **Club Member Outreach:** Target bicycling and running clubs to exhibit safe and courteous behavior, setting a good example for other users.
- **Safe Routes to School:** Leverage the existing program to educate students on safe and courteous Bikeway behavior.



## 8. Policing and Public Safety Recommendations

Existing Condition	Principle	Recommendation and Benefits
Municipal police respond to reports and conduct periodic patrols, .	Engage Bikeway users to serve as ambassadors to improve safety.	Working with volunteer ambassadors will help improve safety and user etiquette on the trail.

Within each Town’s jurisdiction, individual Town police forces will be responsible for public safety and security. Bicycle mounted patrols will be most effective along the Bikeway, but some towns do not have the person power or equipment to participate in patrol of the Bikeway.

User security can be augmented by citizen volunteers or through cooperative arrangements with other Town programs. Formation of a Bicycle Ambassadors program would provide additional “eyes” on the trail and have the ability to report incidents and assist troubled Bikeway users. Bikeway Ambassadors: are volunteers who demonstrate appropriate Bikeway behavior, communicate key messages to other users, and provide assistance when needed. The key to effective trail policing will be coordination and proper training of ambassadors (including CPR); among the government police forces as well as with civic groups.





## 9. Maintenance Recommendations

Existing Condition	Principle	Recommendation and Benefits
Some areas of the trail show significant damage from root invasion and other pavement condition problems.	Use best practices to repair the Bikeway from root damage.	Timely repair of pavement, especially from root damage will reduce safety hazards on the trail.
Some signage on the trail is damaged or vandalized.	Work collaboratively to maintain signage on the Bikeway.	Maintained signage presents valuable information and creates a positive aesthetic environment for all users.

### Existing Maintenance Practices

Each town has established practices to maintain the trail throughout the year. The Commonwealth of Massachusetts has established maintenance standards for multi-use trail maintenance ([http://www.massdot.state.ma.us/Portals/8/docs/designGuide/CH\\_11\\_a.pdf](http://www.massdot.state.ma.us/Portals/8/docs/designGuide/CH_11_a.pdf)) which are used by some agencies as a guide for their operations. Regular maintenance is important for Bikeway safety and comfort. Specifically:

- The Bikeway should be cleared of debris that creates obstacles for cyclists. This is a concern especially after storm events when significant amounts of leaf litter and broken branches can fall onto the trail.
- Vegetation should be pruned or mowed to maintain sightlines.
- Snow and ice should be plowed to allow cyclists to use the trail safely.
- Broken pavement, especially from root invasion, should be repaired to maintain a smooth riding surface and reduce hazardous obstacles for cyclists, runners, and pedestrians.

The following table outlines current maintenance practices and funding sources.

ARLINGTON		
Maintenance activity	Activity Details	Funding Source
Snow plowing	Snowplow	DPW
Leaf litter sweeping	Volunteer spring clean-up event. DPW picks up debris bags following the event	Arlington Bikeway Advisory Committee & DPW
Shoulder mowing	Unknown	Unknown

BEDFORD		
Maintenance activity	Activity Details	Funding Source
Snow plowing	Snowplow	DPW
Leaf litter sweeping	Performed a couple times in the fall	DPW
Shoulder mowing	As Needed	DPW

LEXINGTON		
Maintenance activity	Activity Details	Funding Source
Snow plowing	Private contractor snowplow	Private donations obtained from Lexington Bikeway Advisory Committee
Leaf litter sweeping	Weekly sweeping from May-November and as needed after storm events Volunteer Spring and Fall Cleanup events	DPW Lexington Bikeway Advisory Committee
Shoulder mowing	Every 4-6 weeks Pruning 2 times a year or as needed with volunteers	DPW Volunteers

## Pavement Damage/Deterioration

The Bikeway pavement should be kept in satisfactory condition to maintain safety for Bikeway users and reduce long-term costs associated with complete reconstruction. Obstructions should be removed to accommodate cyclists and skaters as well as users with disabilities.

Currently, some Bikeway users report trail conditions via a Yahoo Group to other trail users to alert users to exercise caution on unplowed or unswept sections. While each town should strive to keep the trail clear, social media can be used to communicate conditions of the trail after storm events. The Towns can use a mobile app such as *SeeClickFix* (<http://seeclickfix.com/>) to allow Bikeway users to report hazardous condition to the Towns.

## Root Invasion

A common complaint heard from Bikeway users is the pavement damage due to tree root invasion. Pavement damage from tree roots is hazardous to Bikeway users and creates accessibility issues. A three-fold approach should be used to mitigate root damage hazards, beginning with the least effort and increasing effort as needed.

1. **Spot Improvement:** Grind pavement or overlay/patch isolated locations to remove hazards.
2. **Root Removal:** Remove roots from beneath trail surface and repair pavement surface.
3. **Tree Removal:** Completely remove the tree and root system and repair the pavement and adjacent surface.

Root barriers have shown varying degrees of success in different applications. To be effective, the root barrier must extend deep enough to reduce the likelihood of roots growing beneath the barrier and returning to the surface. If used, root barriers should extend to a depth of two feet below the ground surface.

Town agencies should discuss best practices and challenges for root removal to improve maintenance techniques. If root removal cannot be addressed immediately, Town agencies should continue to mark pavement damage from roots with spray paint to increase visibility to cyclists.

## Signage & Pavement Marking

Signage and pavement markings on and approaching the Bikeway should be inspected annually. Worn or missing signs and pavement markings should be replaced as soon as possible, especially at intersections.



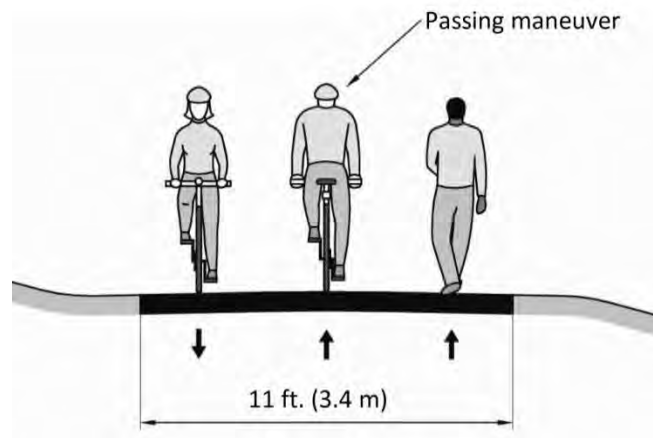
# 10. Future Improvement Recommendations

Existing Condition	Principle	Recommendation and Benefits
The existing trail is relatively narrow in many places for the high volumes of users it sees today.	Manage and accommodate increased growth and use of the Bikeway.	Widening the Bikeway where feasible and providing waysides for users to get off the trail will improve safety and comfort along the Bikeway.
There is a desire to create a long-lasting trail system while reducing environmental impacts.	Incorporate sustainability and low-impact designs.	Future improvements should be constructed to reduce maintenance. Environmentally sensitive construction materials should be used on the Bikeway.

In addition to wayfinding, amenities, and intersection improvements, there are several areas of improvement that may be addressed in the future to improve the Bikeway experience. As plans to extend the Minuteman Commuter Bikeway solidify, uniformity and consistency with these recommendations should continue on future extensions to maintain the Bikeway identity.

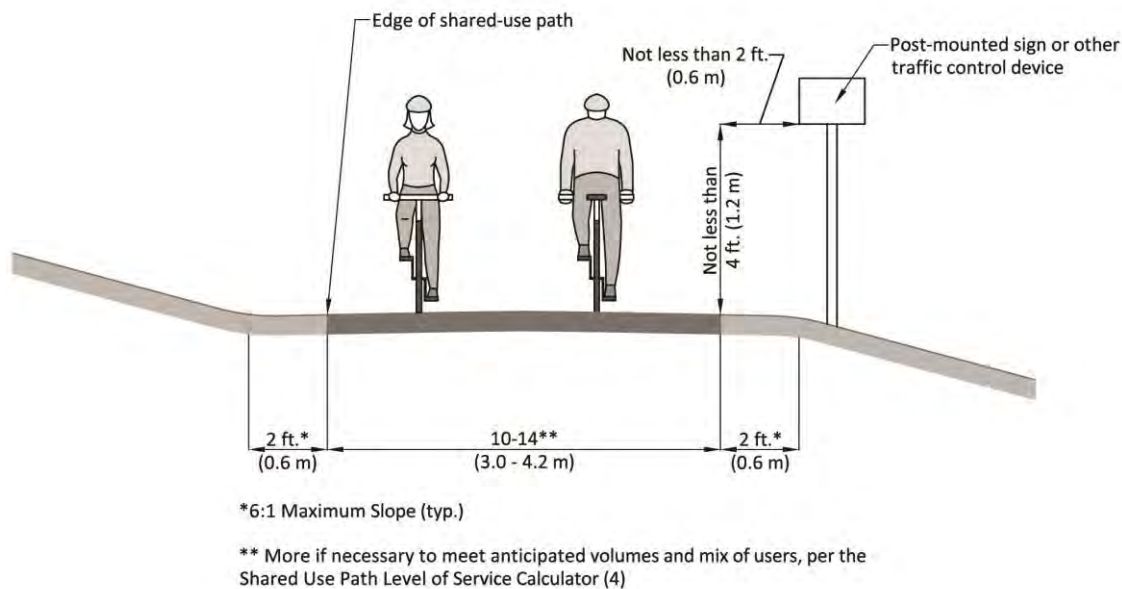
## Widening

The existing Bikeway is between 10 and 12 feet wide and is heavily used. AASHTO identifies 11 foot trails as acceptable for cyclists to pass one another in areas of bi-directional bicycle travel, however, this does not accommodate passing when bicycles are riding side by side.



Source: AASHTO Guide for the Development of Bicycle Facilities

Areas of highest use should be widened to 14-16 feet, where feasible, to accommodate passing cyclists during periods of heavy two-way traffic. Significant financial investment is needed for widening, especially in physically constrained areas. Based on the Federal Highway Administration's Shared Use Path Level of Service (LOS) Model, the current LOS on the Minuteman Commuter Bikeway is a C. This score will likely decrease as usage increases, necessitating widening to improve the comfort of all users. This greatly improves the level of service on pathways with high user volumes.



Source: AASHTO Guide for the Development of Bicycle Facilities

Many trails employ stone dust pathways or shoulders adjacent to paved pathways to accommodate walkers and runners in high traffic areas. Using stone dust can be a cost effective way to shift some of the Bikeway's traffic to one or both of the shoulders, however, this is not a direct substitute for widening the paved section of the roadway as stone dust pathways are not recommended to accommodate passing cyclists.

## Context Sensitive Materials

As improvements are made to the Bikeway, environmentally and historically sensitive materials should be considered to reduce environmental impacts and strengthen the image of the Bikeway as an environmentally friendly and historical amenity.

## Surfaces/ Paving Materials

A variety of surface material options are appropriate for various segments of the Bikeway and amenity areas.

- Pavement:** Standard asphalt is recommended for the primary trail and circulation routes along the alignment. An asphalt surface with an aggregate base is suggested depending on local geotechnical conditions. Along segments where the existing asphalt surface is planned to be rehabilitated or resurfaced, milled materials should be reused or recycled within the project to minimize waste to the greatest extent possible.
- Pavers:** Within gateways, waysides and connecting trails, a variety of concrete, granite, or brick pavers may be utilized in different patterns to create unique areas of interest. However, similar use of surface material is recommended for consistency and user familiarity when using the trail. Accessible routes, preferably concrete, should be maintained through all locations utilizing pavers.



- **Permeable Surfaces:** Similar to locations acceptable to the use of pavers, permeable material surfaces allow water to penetrate through the surface directly to the subsoil by using specialized paving materials such as paving blocks, pervious concrete or asphalt, turf block, decomposed granite, crushed rock, gravel, or soil pavement. Most materials are available in a variety of colors, shapes, and forms and may be arranged in various patterns or stamped to create a unique aesthetic appearance. However, where trail segments, wayside or trailhead areas are frequently flooded, the use of permeable surfaces is not recommended, due to the increased chances of clogging of the porous spaces.

## Landscaping, Low Impact Development and Grading

Landscaping and low impact development treatments should be provided along the trail alignment to provide visual interest and to treat the water quality and erosive impacts of stormwater runoff.

- **Landscaping:** Planting areas should be complementary to the general park-like setting of the Bikeway and should vary in function, form, and scale to frame positive views, as well as guide circulation, screen negative views, and provide shade and relief from the sun. In general low bushes and limbed-up trees are recommended to improve visibility along the Bikeway and improve surveillance visibility. The landscaping character should embrace the gateways and waysides in particular. Landscaping should be considered at the recommended waysides and trailheads described in this report.
- **Low Impact Development:** Low impact development (LID) is the treatment of stormwater through the use of biofiltration techniques such as bioswales, raingardens, permeable surfaces, and tree box filters to improve water quality and reduce stormwater runoff and pressures on existing storm water infrastructure systems. Low-impact development areas are recommended along the trail at the trailhead, wayside, and Town center areas, where feasible.

### Low Impact Stormwater Solutions

#### Bioswales

Bioswales are vegetated drainage channels that convey, infiltrate, and treat stormwater runoff water through the use of vegetation and natural biological processes. These systems can be designed into areas that receive run-off from paved areas where runoff may be laden with oil and other waste washed from roadways or as overflow conveyance systems for other bioretention facilities.



Figure 4: Bioswale with information signage

#### Rain Gardens

Rain gardens are shallow depressions that infiltrate and treat stormwater through the use of deep-rooted native plants and grasses. These systems are located near a runoff source with

drainage areas up to 5 acres in size. These features provide an aesthetically interesting garden area while treating stormwater, compatible with a park setting or educational interpretative area.



Figure 5: Rain garden at crossing

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### Tree Box Filters

Tree box filters consist of a container filled with an engineered soil mixture, under-drain system, and a tree or various plantings located along a roadway or impervious surface area. These systems typically replace or provide pre-treatment upstream of traditional stormwater drain inlets and treat stormwater runoff through infiltration, and natural biological processes by the plant materials present in the tree boxes.



Figure 6: Tree box filter |  
Massachusetts Stormwater Handbook

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### Permeable Surfaces

As noted in the surfaces and paving materials section, permeable surfaces would be used to provide additional areas for water infiltration into the underlying soil, reducing stormwater runoff.



Figure 7: Permeable pavers

# 11. Next Steps

The Towns should review this plan with local stakeholder groups and government agencies to prioritize next steps and determine responsibilities for implementation. Stakeholder groups may include but are not limited to, the following:

- Arlington Bicycle Advisory Committee
- Bedford Friends of the Minuteman Commuter Bikeway
- Friends of Lexington Bikeways
- Economic development departments
- Tourism organizations
- Public Safety departments
- Town center committees

## Management and Maintenance of Trail

Trail maintenance and management will involve a variety of activities through a variety of jurisdictions. As described earlier, collaboration between jurisdictions is recommended to improve efficiencies and reduce costs.

### Implementation

- Managing phased addition of wayfinding and trail amenities
- Coordinating design and installation of waysides, trailheads, and/or interpretive signs

### Ongoing Maintenance

- Coordinating with Town agencies to provide maintenance and surveillance support, and ensuring on-going coordination and information exchange among town agencies, neighborhood groups.
- Developing promotional materials.
- Managing trail operations and addressing any user conflicts that may arise.
- Regular clearing of vegetation and overgrowth.
- Repairing damaged sections of the trail treadway.
- Trail sweeping and emptying trash receptacles.
- Regular inspection and cleaning of catch basins, culverts and other drainage facilities.
- Maintaining and replacing signs and pavement markings.
- Graffiti removal, if necessary.
- Tree root damage maintenance and prevention



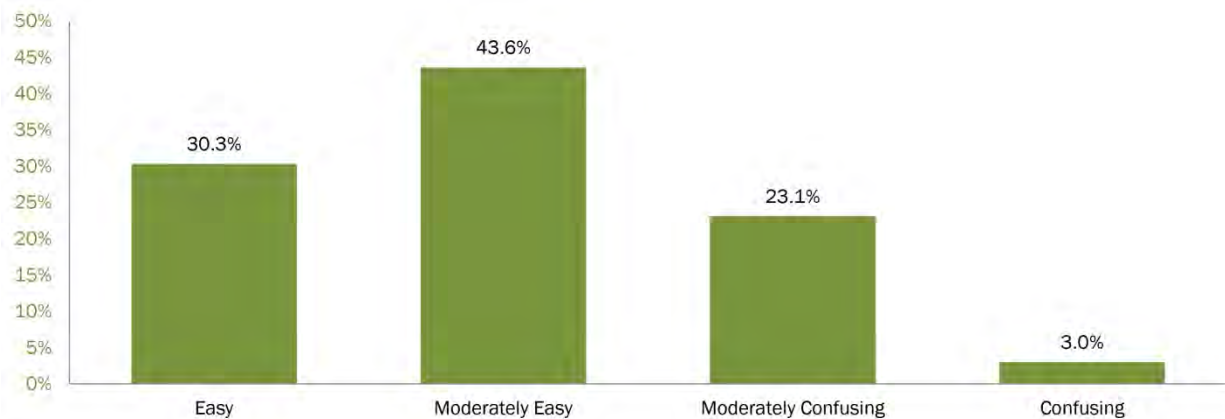


# Appendix A: Public Outreach

The Minuteman Commuter Bikeway public online survey, conducted in September 2012, was prepared by Toole Design Group on behalf of the Town of Lexington for the Navigating the Minuteman Commuter Bikeway Project. The purpose of this questionnaire was to collect feedback from Bikeway users to identify desired improvements to trail signage, intersection crossings, and trailside amenities within the Towns of Arlington, Bedford, and Lexington. Posters were placed along the Bikeway with a link to the survey and a Quick Response code for use with mobile devices. Nearly 1,000 responses were recorded for the 15-question survey.

## Survey Responses (in order asked)

### 1. How easy or difficult is it to navigate along the Bikeway?



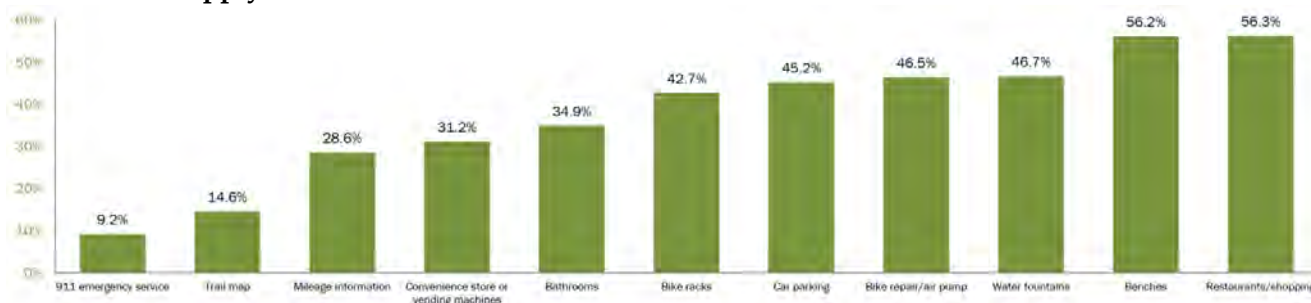
### 2. What aspects of Bikeway signage would be most important to improve?

- |   |   |
|---|---|
| 1. Mile Markers / Distances                         | 5. "You Are Here" Maps                  |
| 2. Context Signs (Amenities / Historic Sites, etc.) | 6. Entrance / Exit Signs                |
| 3. Cross Street Signs                               | 7. Signs for Arlington Center           |
| 4. Rules of the Road / Trail Etiquette              | 8. "Stay to the right" Signs            |
|   | 9. Distance to Town Centers             |
|   | 10. Bathroom / Water Fountain Locations |

### 3. Which of the following amenities do you know where to locate along or near the Bikeway?



(Mark all that apply.)



4.

**Are there additional amenities or destinations you would appreciate navigational information to?**

*Directions to:*

1. Other Trails / Paths
2. Parks / Playgrounds / Athletic fields
3. Restaurants / Cafes / Food stores
4. Shopping centers
5. Bike Shops / Bike Friendly Businesses
6. Historic Sites
7. Tourist Point of Interest
8. Town Centers
9. Public Transportation
10. Schools

*Amenities:*

1. Bathrooms
2. Water Fountains
3. Mileage Markers
4. Trail Maps
5. Bike Repair Stands
6. Street Signs
7. Trash Cans
8. Benches
9. Lights
10. Bike Parking

**5. What amenities would you recommend to improve your Bikeway experience?**

1. Repave Bumps
2. Water Fountains
3. Bathrooms or Directions to Bathrooms
4. "Rules of the Road" Signs
5. Lighting
6. Intersection Improvements (Gates, stop signs, safer crossings)
7. Snow and Debris Removal
8. Bike Repair Stations
9. Signs to Nearby Amenities and Trails
10. Benches

**6a. What three Bikeway intersections are the most difficult to cross?**

1. Arlington Center/Mass Ave
2. Lake Street
3. Hancock Street in Lexington
4. Woburn Street
5. Bedford Depot
6. Alewife
7. Pleasant Street
8. Lexington Center
9. Hartwell Avenue

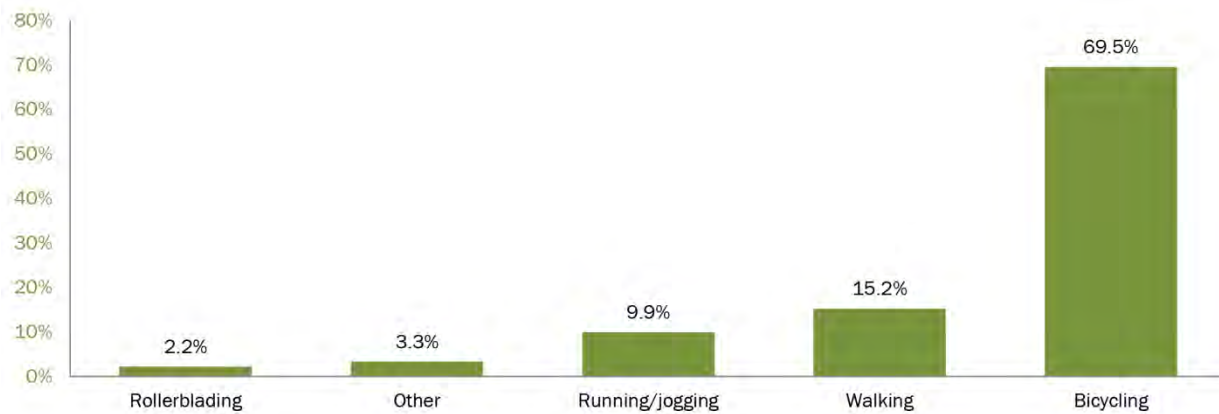
**6b. What makes these intersections challenging?**

1. Traffic / Congested
6. Confusing

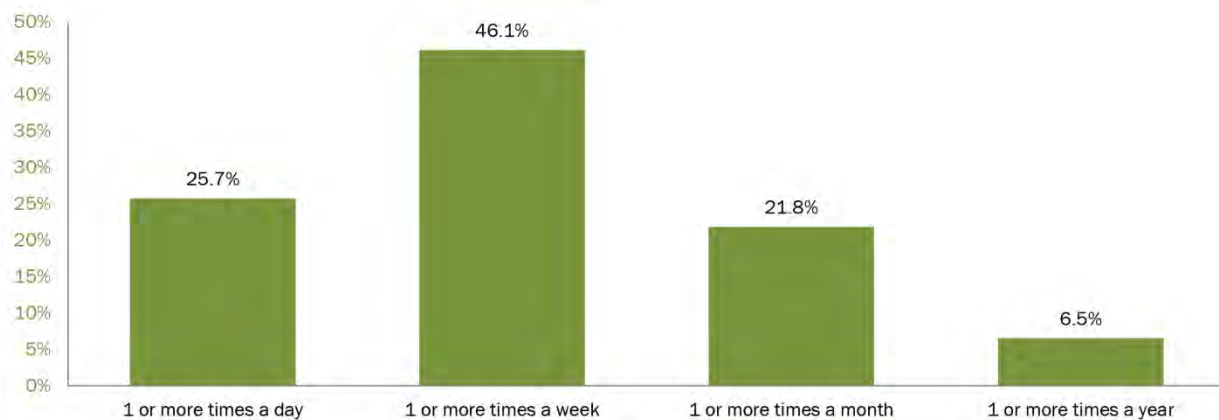


- 2. Car Drivers
- 3. Gap in Pathway
- 4. Visibility (e.g. landscape, lack of lighting, etc.)
- 5. Lack of Enforcement / Signs / Speed Bumps
- 7. Tricky / Twisty / Bad Angled Pathway
  - Unsafe Pathway
  - Scary / Dangerous
- 8. Technical Problems (e.g. walk traffic lights)

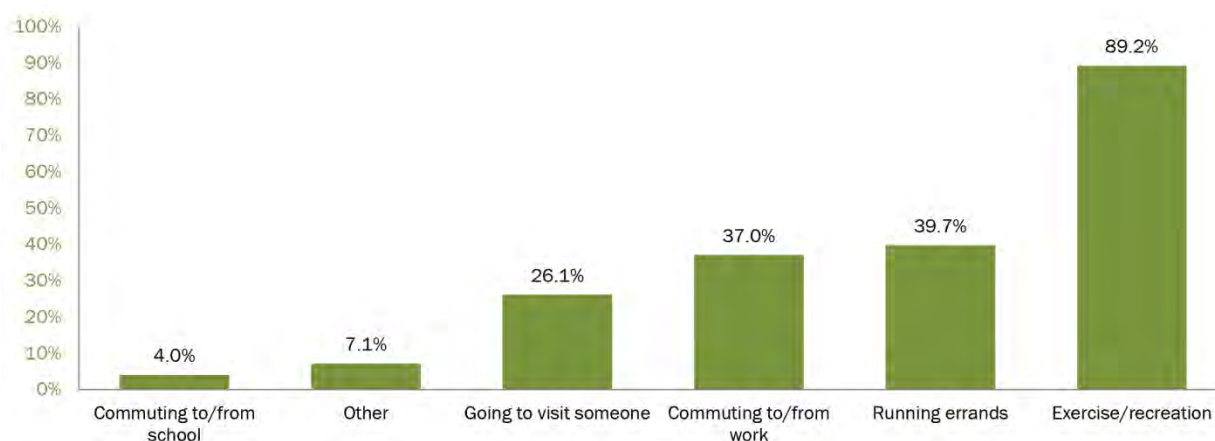
### 7. How do you most frequently travel on the Bikeway?



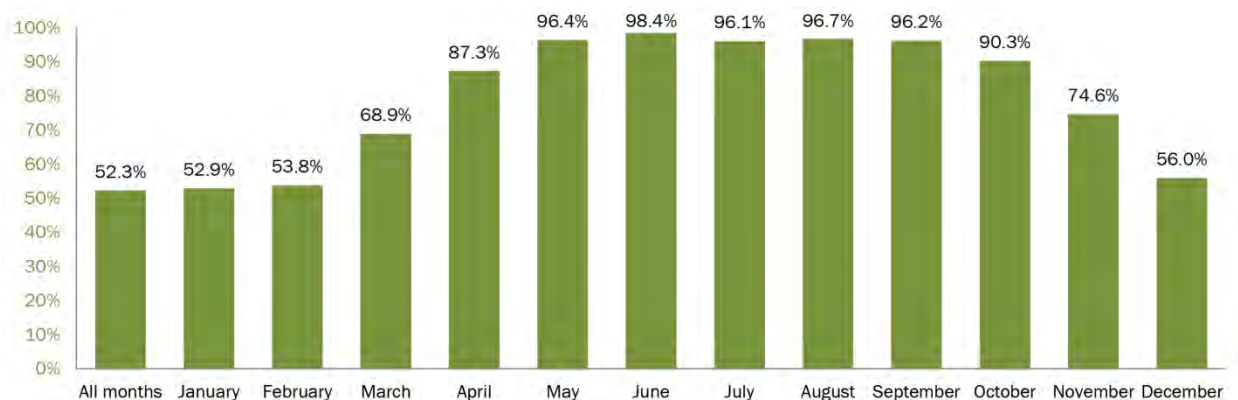
### 8. How frequently do you use the Bikeway?



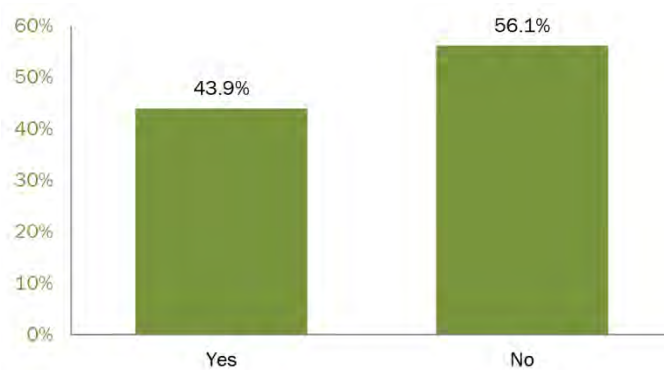
### 9. How do you use the Bikeway? (Check all that apply.)



### 10. During which months do you use the Bikeway?

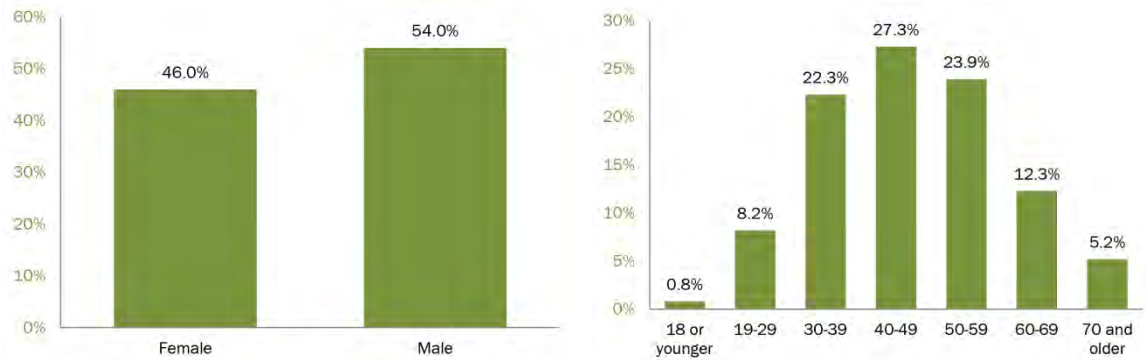


### 11. Do you use the Bikeway at night?



2.

### Survey Respondents' Gender and Age

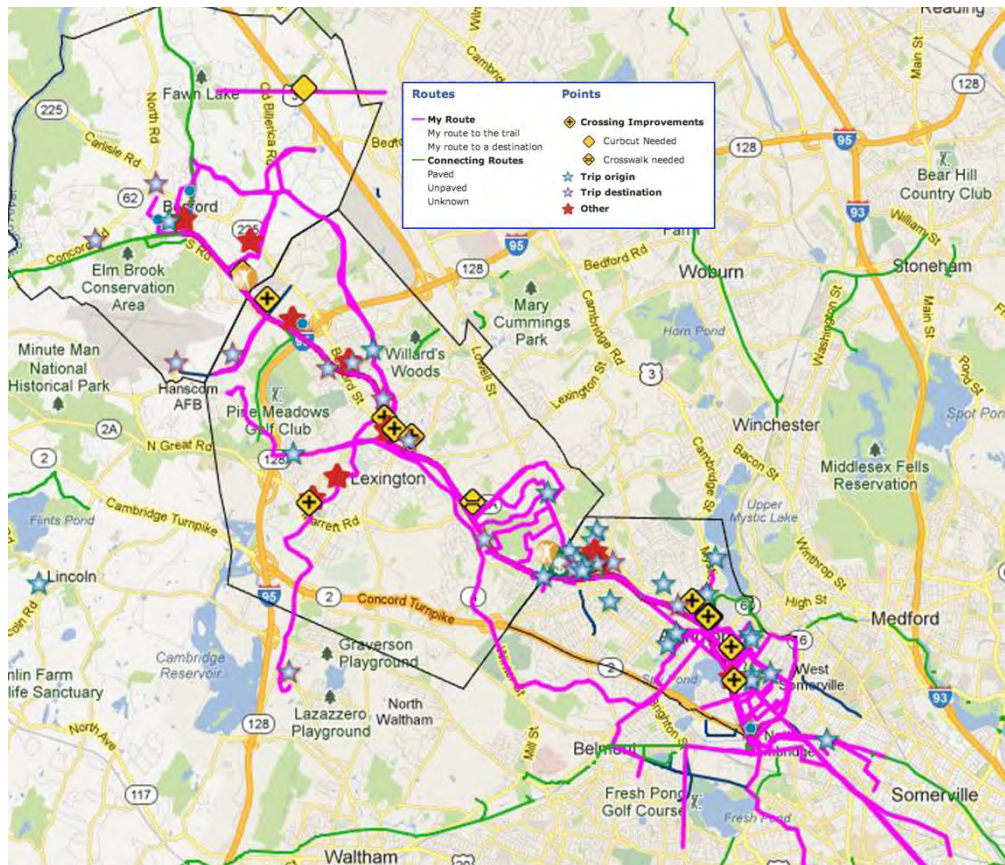


## WikiMap

The public outreach included an online mapping tool used to gather public comment on connections to and from the Bikeway and nearby destinations.

From their home computers, participants used the map to:

- Draw their routes to and from the Bikeway and indicate how frequently the routes were used.
- Identify specific points of interest of personal importance.
- Leave comments or “like” points of interest identified by other users.
- Upload photos on their routes or on specific points of interest.
- Submit their observations, needs, and wants, and provide feedback on the Bikeway both as a whole and about specific locations or elements.



A total of 34 community members used the WikiMap to provide additional information. Generally, information provided was routes traveled on the Bikeway (pink lines) preferences to and from the Bikeway (green lines) and troublesome intersections (yellow intersection signs).



# Appendix B: Community Input

The following table lists comments received from public and stakeholder meetings, the open house, and additional communication with the public and stakeholders.

COMMENT	RESPONSE
Awesome presentation of ideas.	No response needed
Don't know what trail marker this means (near Bedford Narrow Gauge Rail)	Town agencies should use a consistent graphic style for signage and a standard design for new site furniture.
Lexington welcome signs should be coordinated with Lexington Tourism Signage Program (near bottom right corner)	Town agencies should use a consistent graphic style for signage and a standard design for new site furniture.
I only have one comment. I did not see any use of current mobile technology like a QR code or app or link. Many people travel the bike path with smart phones and simply providing them with a link - may be to a map of local businesses or QR with this info, would be a good way to stay current.	Town agencies should improve mobile wayfinding. Suggestions include: Holding a contest to create a mobile app for the trail which may include historic content, maps, and local amenities / events; Encourage current mapmakers to issue a mobile version (including PocketRides, Mass Bike);
Every road have trail signage	Key routes to the Bikeway should have signage.
Incorporation wayfinding into buildings, i.e. depot	Wayfinding from each town is the responsibility of the town. Towns should use the Minuteman logo for consistency where possible.
Consistency!	Town agencies should use a consistent graphic style for signage and a standard design for new site furniture.
Using the mile markers that exist on the Bikeway may be a problem. The roman numerals going west to east are incorrect, showing an 11 mile trail because the first marker says "1" instead of "0". There are no ½ mile markers on the Bikeway now, should be, and should include the name of the town the user is in.	Mile markers are not recommended due to the number of intersections along the Bikeway.
Encourage adjacent business to have signs describing their amenities? (water, food, restroom); (near #2 Direct Bikeway Users...)	Water and restrooms should be provided on the trail. Signage and maps on the Bikeway should identify town centers or areas with retail and amenities.
Like simplicity of signage. Please formally present to Lexington Tourism Committee for recommendations/support (near Mile Markers)	Town agencies should use a consistent graphic style for signage.
New mileage markers should look like smaller version of trail head signs (near title border)	Town agencies should use a consistent graphic style for signage.
Lexington Depot: "railroad station" type sign on Depot Building "Lexington Center" (near comment above)	Town agencies should use a consistent graphic style for signage.
Do <u>not</u> deface existing granite mile markers w/ modern signage. They are BEAUTIFUL. Would you put a sign on Stonehenge (near comment above)	Mile markers are not recommended due to the number of intersections along the Bikeway.
Put up colored flag along the pathway to represent the town (near "Minuteman Bikeway 0.5" title)	Town agencies should use a consistent graphic style for signage.
Perhaps an "add-on" option where there already (too) many signs (near Maguire Rd photo)	Fingerboard signs can combine information.
How about putting up street name signs where bike paths cross streets? Besides being a convenience issue, this is also a safety issue. Someone who dials 911 needs to be able to describe their location. So please put street name signs at every street crossing on the Minuteman and the other bike paths in town.	All intersecting streets should have a street sign, including those that do not intersect with the path (e.g. an overpasses and underpasses).
Use full name: "Minuteman Commuter Bikeway"	Full name will be used.



COMMENT	RESPONSE
Great to have more signage! Would be more of they are w/ a good height for biker (near above comment)	A strategic signage plan is needed to convey important information without creating signage clutter. Signs should be placed at a minimum of 4 feet from the ground, per MUTCD guidance.
Gates are hazardous; replace with splitter islands; at least paint bright colors	Gates and bollards should be removed from all entrances to reduce hazards to cyclists.
Planned Improvements to Lexington Visitors Center would benefit by incorporating suggested Bikeway needs (near Revere Street)	Lexington Visitors Center is recommended as a potential wayside.
Remediate headlight glare from Summer St? (near Warren Pierce Playground)	Noted.
Arlington is putting a visitor info booth in Arlington Center (by Uncle Sam Statue); (near Water Street)	Each town should consider including wayfinding to the Bikeway on town maps.
Bench design should be consistent with existing benches	While there are several bench designs in existence on the trail, future benches should have a uniform design.
Signage for bathroom (near Depot Square)	Maps and signs should identify restrooms along the trail.
Better access to town center and bike lanes along Mass Ave in commercial area	Addressed in wayfinding recommendations.
Where are ideas about how to better utilize the Lexington Depot and the Lexington Visitors' Center as trailhead/wayside/information center for Bikeway? What is the analogue in Arlington and Lexington to the Bedford Depot?	Recommendations for waysides at these locations and others are included in the report.
Need to beef up recommendations about trailheads and parking. Parking is badly needed.	Recommendations for additional parking areas are included in the report.
Historic kiosk example?	Interpretive panel examples shown in the Trailheads and Waysides section.
Visitor Center plan	A wayside may be located at the Visitor Center.
Signs for bathrooms	Maps and signs should identify restrooms along the trail.
Kiosks: add "natural history" to the types of information.	Interpretive panels will include Colonial history, Railroad Era history, Recent history, and Natural History and Features.
Consistency—reflective paint	Signage should be made with reflective paint for visibility in low light conditions.
Signage	Signage should be consistent and strategically placed to provide important information to users without creating visual clutter.
Rest places and water would be great. Please avoid marketing/advertising and keep the Bikeway green (near #1 title)	Signage should be consistent and strategically placed to provide important information to users without creating visual clutter.
List amenities in Google Maps. Develop App! (near head title)	Town agencies should improve mobile wayfinding. Suggestions include: Holding a contest to create a mobile app for the trail which may include historic content, maps, and local amenities / events; encourage current mapmakers to issue a mobile version (including PocketRides, Mass Bike).
Concerned about over signage (near "Recommended Informational Kiosk Content")	Signage should be consistent and strategically placed to provide important information to users without creating visual clutter.
Creating more rest stops is a great idea. PLEASE, granite benches only (near photo in right bottom corner)	Town agencies should consider granite benches if budgets allow. If not, metal benches are preferred to wooden benches.
Separate trash bins & recycling bins (near above comment)	Town agencies should work together to encourage recycling on the trail, through separated bins or co-mingled operations.
Mileage markers distance believe points; distance to level 3 waypoints & other amenities	Wayfinding
(Happen to notice the logo here blocks bike through rack. Conceptual only?) (near bike rack graphics)	The bicycle racks shown are intended to support bicycles parallel to the rack rather than through the rack.
Trash cans w/ lids (and recycling) (near trash/recycling photos)	Town agencies should work together to encourage recycling on the trail, through separated bins or co-mingled operations.



COMMENT	RESPONSE
More clearly marked/visible restrooms or porta potties please! Might be more important than water for many users (ex families & children). You can carry your own water, but you can't really carry your own potty (near Level 3 Waysides)	Maps and signs should identify restrooms along the trail.
Great amenities all. Much needed (near above comment)	No response needed.
Drinking fountain away from edge of trail & convenient to fill water bottles (near drinking fountain photo)	Drinking fountains should be located off the path on waysides and should include a spout to easily fill water bottles.
Lights at intersections for night crossings (near above comment)	Intersection lighting recommendations are included in the report.
Too modern for historic town (near Information kiosk conceptual mockup photo)	Kiosk design should include the Minuteman Logo and reflect the historic nature of the trail.
Lexington visitor's center lacks any welcome sign on the "back" door facing the Bikeway. Also, no wayfinding to toilet facility within! (near above comment)	Wayfinding and gateway signs on streets leading to the trail should be clearly visible. Maps and signs should identify restrooms along the trail.
Arlington Center intersection needs help. ?change lights so that traffic stops in all directions so users in both directions can stay on the trail by pressing the diamond button only once (also minimize disruption to motorists); (near above comment)	The intersection at Arlington Center is currently being redesigned.
Coordinate content w/ tourism Committee. Providing too much info keeps users from coming into Town (near Recent History box)	Maps should include town centers and key destinations adjacent to the Bikeway.
Massive traffic @ Lake St.	This comment has been noted.
Arlington Center needs complete overhaul-trail confusing traffic – I avoid it!	The intersection at Arlington Center is currently being redesigned.
Much improved. but time Mass Ave street lights for one continuous crossing	The intersection at Arlington Center is currently being redesigned.
Maybe some graphics could illustrate "No parking on one-way" and way signs for cellphone use (near What aspects of Bikeway signage would be most important to improve?)	Trail etiquette should include language about minimizing volume on cell phones and headphones to increase awareness of passing Bikeway users.
Repair the bumps – avoid serious injuries (near above comment)	Town agencies should conduct spot improvements to remove hazards.
Again – bumps are a red danger (near above comment)	Town agencies should conduct spot improvements to remove hazards.
Taxi stand (near "Amenities" by map)	Maps should include existing taxi stands in town centers or transit hubs near the Bikeway.
Stop signs for autos at all intersection except where there are lights & Woburn St. (near Revere Street)	Intersection control will be based on engineering analyses considering motor vehicle speeds and volumes, Bikeway volumes, available sight distance and other factors.
Chirpers for light would be good (near Westview Street)	Accessible pedestrian signals are recommended.
Make Water Street 2 way Bikeway with crossing at intersection of Mass Ave (Jon Joe Michelle)	Noted. This route is a popular alternative.
Make route to Water Street on Mass Ave official	Noted. This route is a popular alternative.
Soft shoulder	Stone dust shoulders are recommended for consideration along the trail.
Mill St. – new treatment	Noted.
Pavement markings on the Bikeway (near "Principles" title)	Centerlines and side striping are recommended, along with regular maintenance.
Clearer roles of the Bikeway for bikers and walkers (near above comment)	Detailed trail etiquette signs should be located at information kiosks at trailheads and passing etiquette signs should be located in high volume areas or areas with low visibility.
For walkers, rules of guidance about walking 3 or more abreast (near above comment)	Detailed trail etiquette signs should be located at information kiosks at trailheads.
Excellent (near "Provide the Least Intersection Control that is Effective")	No response needed



COMMENT	RESPONSE
As a biker or walker on the Bikeway. I do not see differences between these (?) streets. Therefore, control is inconsistent to me (near "Yield Control for Bikeway Users" graphic)	Different levels of control based on the volume of the street can help improve compliance and safety at intersections.
Fabulous Trail!: Some concerns about lack of stop lights at certain crossings Lexington-Bedford section of trail;	Intersection control will be based on engineering analyses considering motor vehicle speeds and volumes, Bikeway volumes, available sight distance and other factors.
Really like 'yields' where appropriate! Seconded! Third! (near above comment)	Yield signs should be employed at low volume intersections rather than full stop signs.
Woburn St – Fletcher really needs to be repaved (near "welcome to Lexington Center " signs)	Noted.
Thanks for fixing (most of) the bumps on the path (near Ryder Street)	Positive comment.
Root Barrier – best practice	DCR and Town agencies should discuss best practices and challenges to improve maintenance techniques.
Closing time?	Hours should be consistent throughout the Bikeway.
Make time consistent	Hours should be consistent throughout the Bikeway.
The root barriers have been put down in Lexington, should acknowledge that.	DCR and Town agencies should discuss best practices and challenges to improve maintenance techniques.
What is meant by "green" material?	Environmentally friendly materials are outlined in the "Future Improvements" section of the report.
What about rain gardens at the chronically flooded spots in Lexington (that is, at Seasons 4 and at Hancock Street).	Analysis to properly locate rain gardens in areas to minimize flooding?
Spell out how "powers group" would work in terms of budget. The reasons the towns don't work together is because they have separate budgets, equipment, etc. The three bike committees work together, but they don't have any power or money. They did develop Bikeway guidelines.	Town agencies should coordinate regular maintenance and dedicate regular funding for this activity as part of regular town activities.
Drainage problems striping of surface (near "Signage & Pavement Marking)	Drainage improvements and striping are recommended.
Annual repainting of centerline needed (it is now faded to non-existent). Also paint fog lines (side stripes); (near above comment)	Centerlines and side striping are recommended, along with regular maintenance.
The three towns should each establish revolving funds to receive & spend private donations and public funding for Bikeway repair/maintenance/improvements (near "Policy" box)	Town agencies should coordinate regular maintenance and dedicate regular funding for this activity as part of regular town activities.
- can Toole be more specific on what types of 'education' will increase compliance of 'rules of the trail'? We already have signs and maps and web sites w/ the information but people don't read them, or choose to ignore	Detailed signage should be located at trailheads and volunteer ambassadors can help spread messages. Signage targeting passing behavior should be placed approaching areas of low visibility.
- improving/maintaining (pruning vegetation) sight-lines as much as possible at intersections is important	DCR and Town agencies should coordinate regular maintenance on the Bikeway.
+ icons/arrows on the pavement indicating proper direction for peds	All trail users should keep right; trail use signs placed on heavily used areas of the trail are recommended to remind users.
+ suggest that young children go on right side of lane, away from center line	Detailed signage should be located at trailheads and volunteer ambassadors can help spread messages. Signage targeting passing behavior should be placed approaching areas of low visibility.
+ ticketing the 'cowboys' who speed/pass on the center line	Trail ambassadors will maintain a presence on the Bikeway to discourage violations.
+ cameras to monitor/record violations	Trail ambassadors will maintain a presence on the Bikeway to discourage violations.
- the ad hoc access path behind Gold Gym, Arlington needs to be 'fixed'. Very dangerous	Noted.



COMMENT	RESPONSE
- ensure abutting parking lot snow is not dumped onto MM (e.g., near Arlington Center)	Town agencies should coordinate regular maintenance on the Bikeway, which includes snow removal.
- DPW inspect rail tree repairs to ensure the contractor has not left bumps	Town agencies should coordinate regular maintenance on the Bikeway.
- the tree root cracks are dangerous; can maintenance paint them orange?	Town agencies should conduct spot improvements to remove hazards.
Spray paint root damage	Town agencies should conduct spot improvements to remove hazards.
Trail maintenance via community clean-up	Town agencies should coordinate to encourage community clean up days.
Spray paint roots	Town agencies should conduct spot improvements to remove hazards.
Brush clearance	Town agencies should coordinate regular maintenance on the Bikeway.
M.O.U best consistent practices	Town agencies should discuss best practices and challenges to improve maintenance techniques.
Country skiing?	The trail must be plowed to accommodate winter commuter cyclists, as commuting is a primary use of the trail. Trailheads may include seasonal information about nearby cross country skiing locations.
Woburn St RFB?	Report includes criteria for locations of rapid flashing beacons.
Volunteer trail ambassador	Volunteer Bikeway ambassadors will help communicate key messages to users and provide assistance where needed.
Police on bikes	Bicycle mounted patrols will be most effective along the Bikeway. However, some agencies do not have the person power or equipment to participate in patrol of the Bikeway. User security can be augmented by citizen volunteers or through cooperative arrangements with other city programs.
Re grinding of root heaves on Bikeway: acknowledge in report that Arlington has recently accomplished this. Lexington's root heaves are awful and getting worse, perhaps Lexington should borrow the equipment Arlington used. (This is in the spirit of more cooperation between towns when it comes to Bikeway maintenance.)	Town agencies should discuss best practices and challenges to improve maintenance techniques.
The root barriers have been put down in Lexington, should acknowledge that.	Town agencies should discuss best practices and challenges to improve maintenance techniques.
This stretch of Bikeway is defined as part of Approved Battle Green Masterplan area and amenities should be consistent with plan (near Meriam Street)	The Battle Green Master Plan calls for landscaping to screen the Minuteman Commuter Bikeway. The Battle Green should be listed on Minuteman Commuter Bikeway maps and historic markers may reference the Battle Green.
Please work w/ Bedford & Billerica on extending completing reformatory branch & narrow gauge/Yankee doodle Bikeway; need parking in Billerica at start of narrow gauge	The Reformatory Branch is outside the scope of this project. Connecting Bikeways and pathways are encouraged to improve access to the trail.
It's really bumpy here (wiggins-128); Barbwire closures for re-paving with preserving access to trail; for many a bumpy trail is better than no trail (near "welcome to Lexington" sign under Westview Street)	Town agencies should coordinate regular maintenance on the Bikeway and maintain access whenever possible.
Particularly liked the engineering of the crossing of roadways/Bikeway;	Context-appropriate intersection controls will help compliance with stop signs.
- the new intersection controls based on context (volume, speed, sight-lines, etc.) - great idea	Context-appropriate intersection controls will help compliance with stop signs.
- widening where feasible - good idea	Widening the bike lane will help accommodate future growth.
+ solid yellow (not dashed) to convey the two lanes	A single dashed yellow line is recommended, except in no-passing areas (per agreement among towns).
- removing the 'dangerous' gates/posts will be welcomed	Positive comment.
Add RF Beacon!	Report includes criteria for locations of rapid flashing beacons.





COMMENT	RESPONSE
Add trail sign	Signage should be consistent and strategically placed to provide important information to users without creating visual clutter.
At Revere St: is yield/stop also on the roadway? Or just on Bikeway?	Draft recommendations are for control only on the Bikeway. An engineering analysis should be conducted.
"Stop" control should also be shown at Depot intersection. This is a very dangerous intersection and is probably what is meant on poster by "Lexington Center." That should be corrected.	The map has been updated to include a stop control at this intersection.
Remove rumble strips! They are a danger to skaters.	Rumble strips are important for accessibility.
In suggestions about widening path: if it's too expensive to widen, then add stone-dust walking paths on either side (the area is already worn down from runners on both sides, just widen it slightly and add a soft surface).	Because cycling constitutes the highest percentage of users, it is recommended to increase the paved area rather than adding stone dust paths.
The map between Bedford and Lexington shows one of the "secondary" connections as the rough trail behind the dump! That is not an access point worth showing. Don't think the survey data for the wikimap was valid if that was one of the secondary points identified. Meriam St is a major access point, as is the roadway to the parking lot behind the Lexington Depot.	The map has been updated to remove this connection and add Meriam St as a primary connection.
What about bollards, what is company's recommendation about blocking intersection entrances with gates or poles? More explicit advice about what is best for intersection safety and modern intersection design (drawings show old fashioned standard right angle intersections – shouldn't intersections be curved like at Westview?)	Bollards and gates should be removed to reduce obstacles for cyclists. Recommended intersection improvements are based on current AASHTO safety standards.



# Appendix C: Cost Estimates

Estimated costs to install recommended amenities and other trail improvements are summarized in the following table. The estimated costs are planning level estimates that are subject to change. Construction cost estimates were developed for the recommendations by identifying pay items and assuming low to moderate quantities. Unit costs are based on 2013 dollars and were assigned based on historical cost data from MassDOT, other state departments of transportation and other sources. The costs are intended to be general and used for planning purposes. Construction costs will vary based on the ultimate project scope (i.e. potential combination of projects, or use of Town forces) and economic conditions at the time of construction. Design, survey, and other pre-construction activities would add to the level of required funding shown below.

## Costing Alternatives:

- Trail widening: Asphalt (\$75-100/lf)
- Trail installation: Stone Dust (\$15-25/lf)
- Wayfinding: Post & Sign Set (\$150-250/each)
- Wayfinding: Interpretation Sign (\$750-1500/each)
- Information Kiosk (\$1,200-2,000/each)
- Trail Wayside Installation (\$5-15,000/each)
- Site Furniture: Benches (\$750-1500/each)
- Site Furniture: Tables (\$800-2000/each)
- Site Furniture: Bike Racks (\$200-500/each)
- Site Furniture: Trash/Recycle Receptacles (\$200-500/each)
- Site Furniture: Solar Compacting Trash/Recycle Receptacles (\$5,000-7,000/each)
- Site Furniture: Dog Bag Dispensers (\$100-200/each)
- Site Furniture: Drinking fountain (\$1,000-5,000/each)
- Site Furniture: Light post (\$5,000-10,000/each)



# Appendix D: Amenity Intensity Maps



# Minuteman Bikeway Trail Inventory Amenity Intensity Map

1/4 mile radius

**Bike  
Racks**

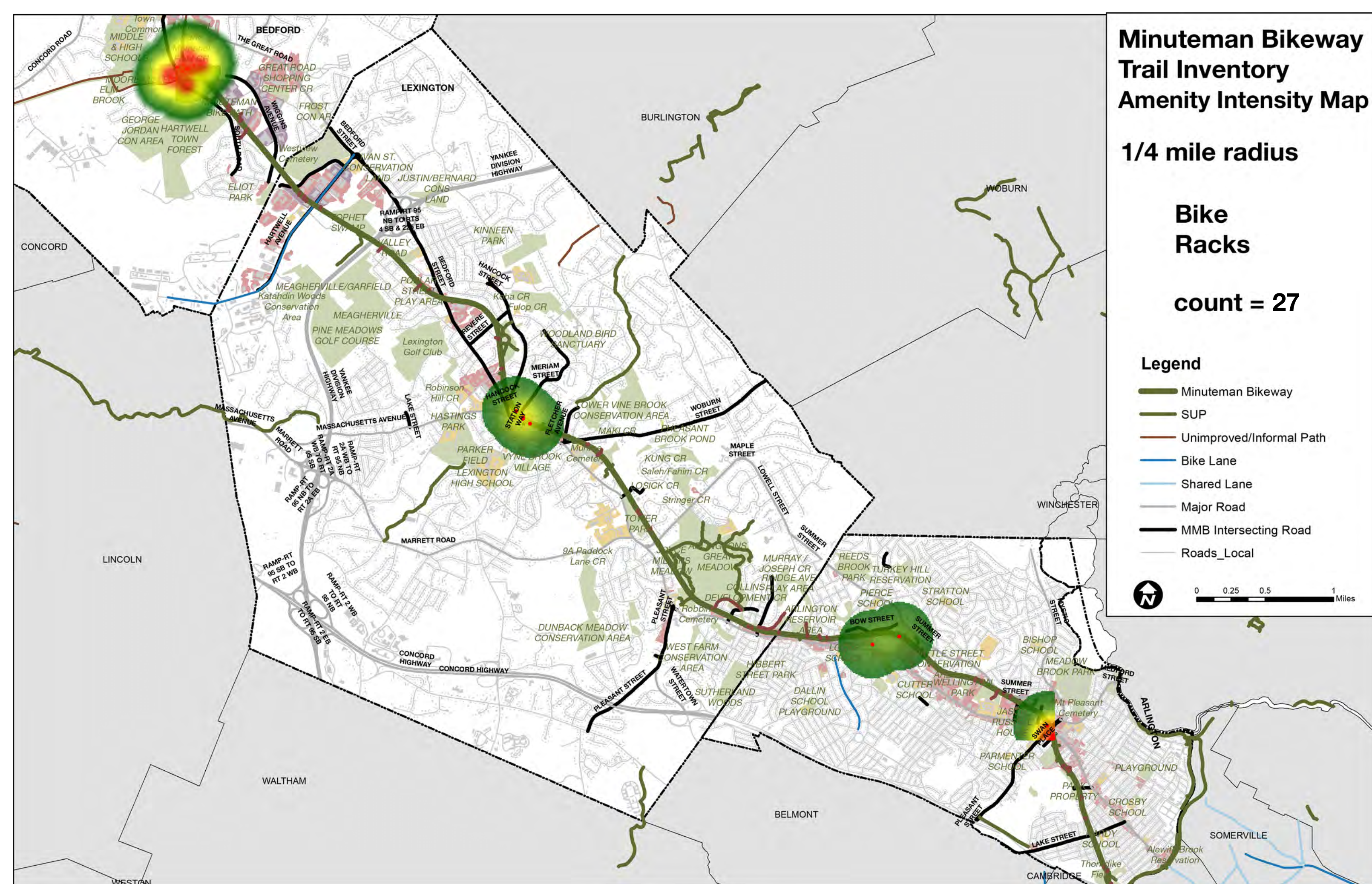
**count = 27**

## Legend

- Minuteman Bikeway
- SUP
- Unimproved/Informal Path
- Bike Lane
- Shared Lane
- Major Road
- MMB Intersecting Road
- Roads\_Local



0 0.25 0.5 1 Miles





# Minuteman Bikeway Trail Inventory Amenity Intensity Map

1/4 mile radius

Bollards

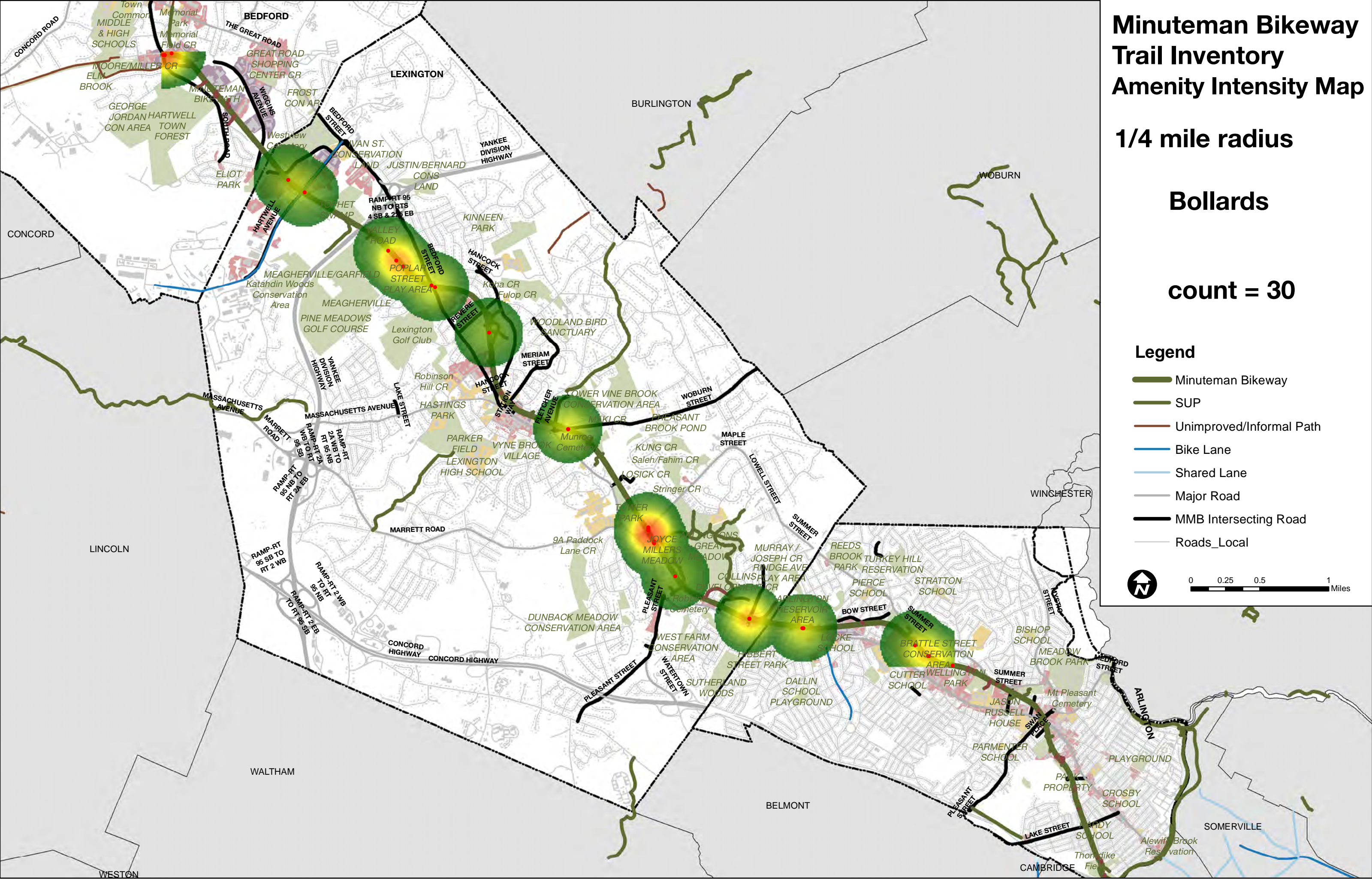
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### Legend

- Minuteman Bikeway
- SUP
- Unimproved/Informal Path
- Bike Lane
- Shared Lane
- Major Road
- MMB Intersecting Road
- Roads\_Local



0 0.25 0.5 1 Miles





# Minuteman Bikeway Trail Inventory Amenity Intensity Map

1/4 mile radius

Decorative  
Plants

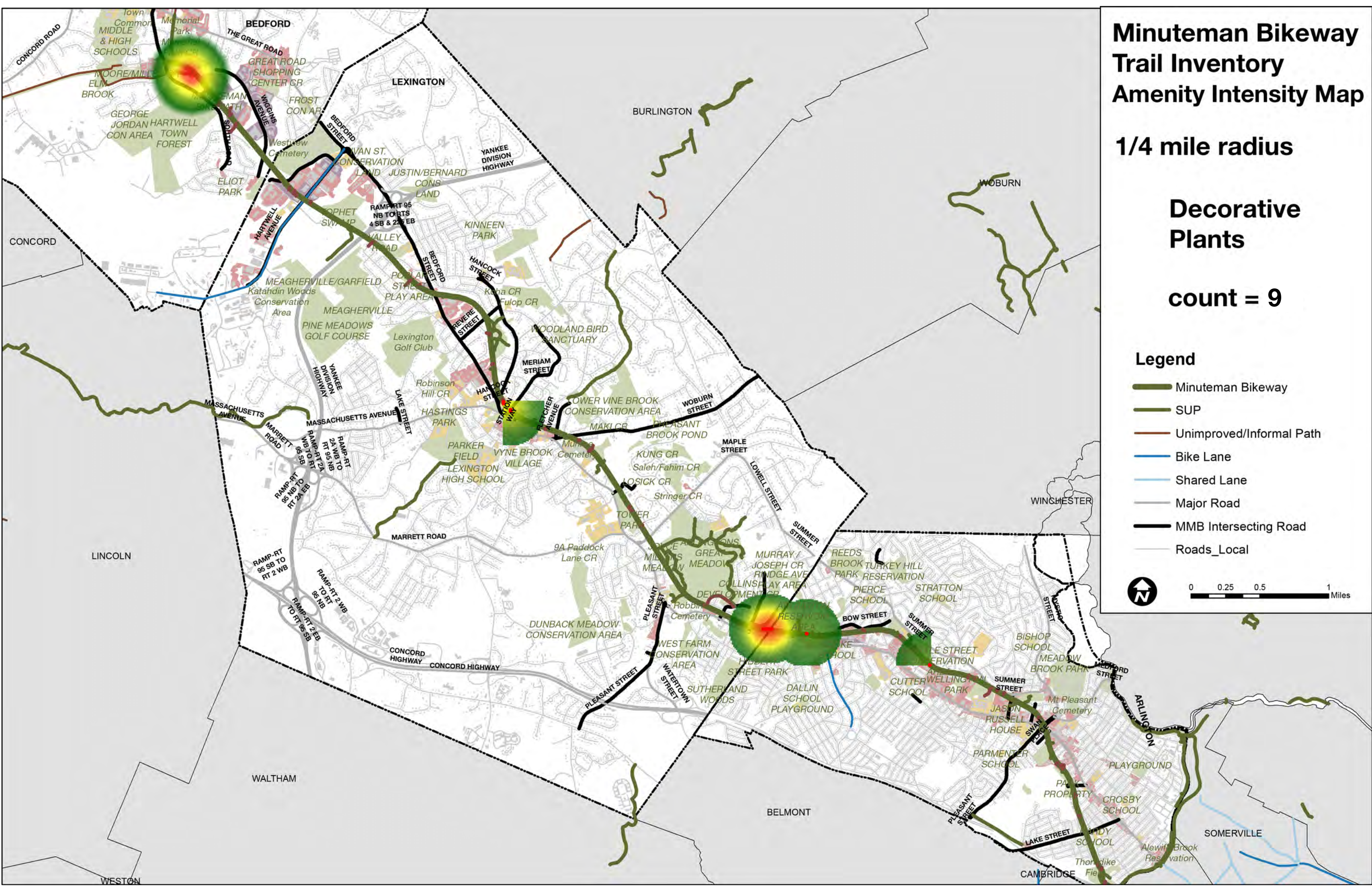
count = 9

## Legend

- Minuteman Bikeway
- SUP
- Unimproved/Informal Path
- Bike Lane
- Shared Lane
- Major Road
- MMB Intersecting Road
- Roads\_Local



0 0.25 0.5 1 Miles



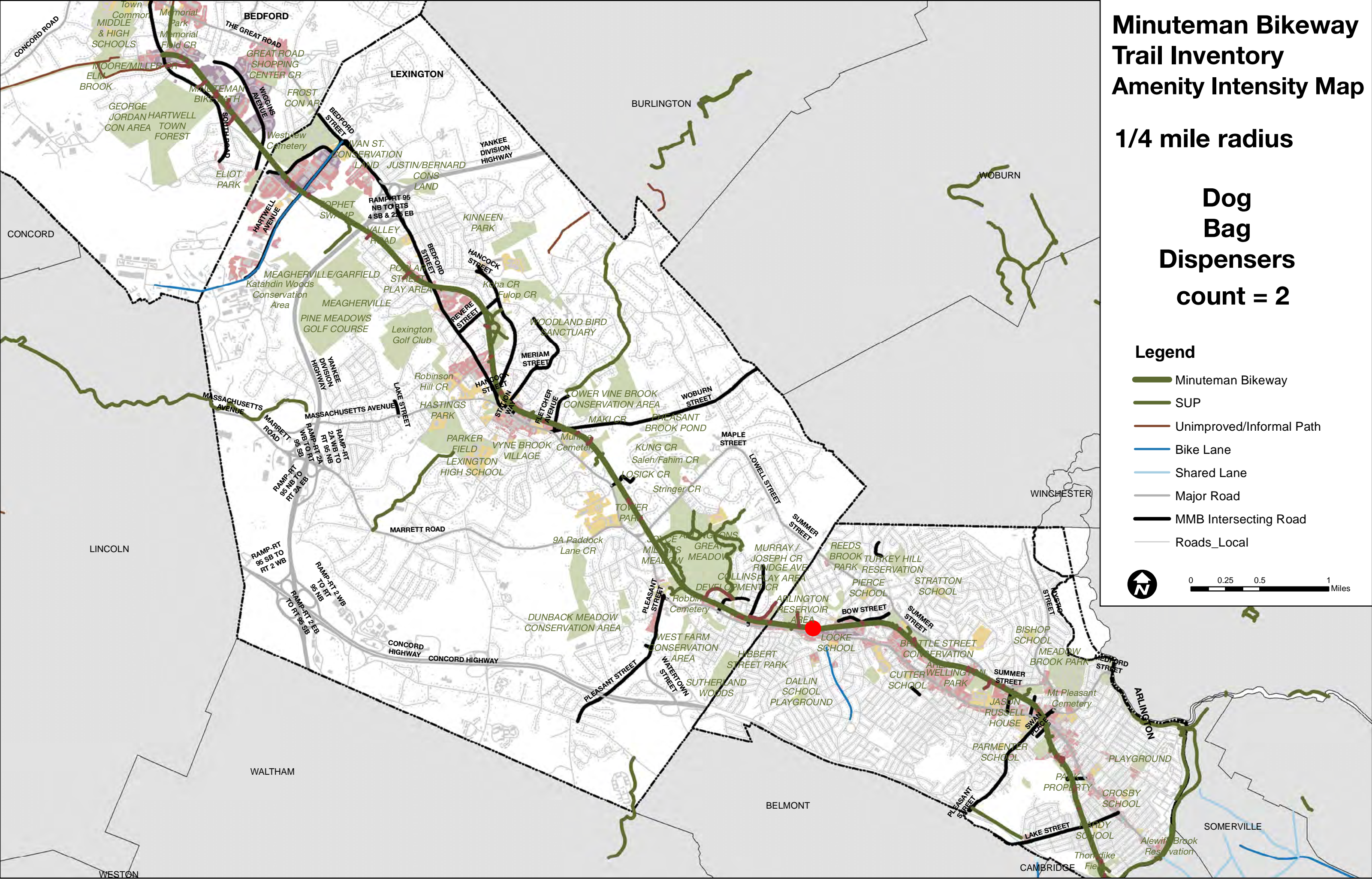
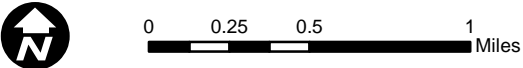


# Minuteman Bikeway Trail Inventory Amenity Intensity Map

1/4 mile radius

Dog  
Bag  
Dispensers  
count = 2

- Legend**
- Minuteman Bikeway
  - SUP
  - Unimproved/Informal Path
  - Bike Lane
  - Shared Lane
  - Major Road
  - MMB Intersecting Road
  - Roads\_Local





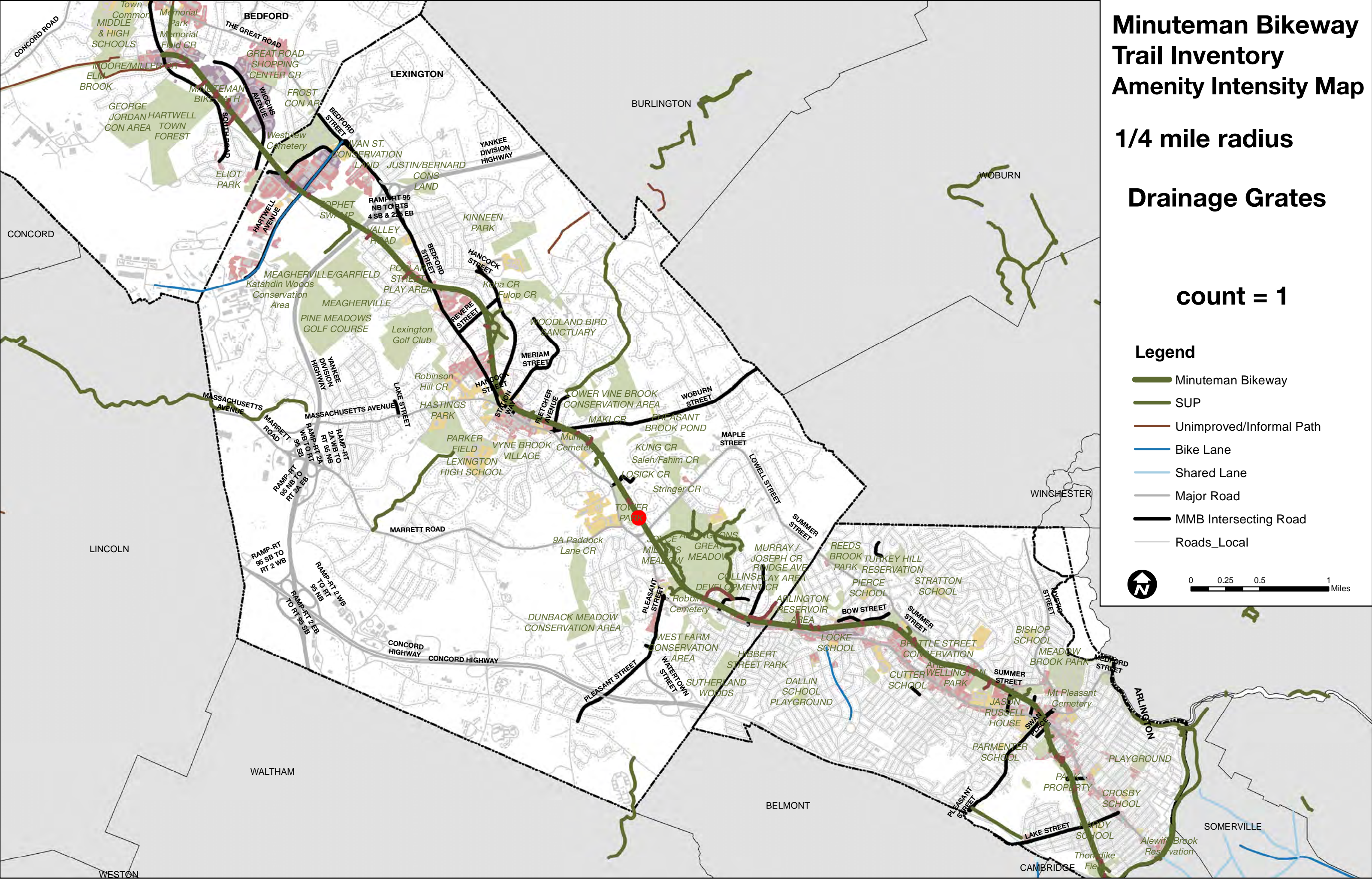
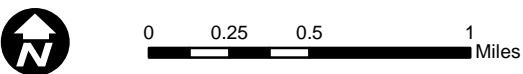
# Minuteman Bikeway Trail Inventory Amenity Intensity Map

1/4 mile radius

Drainage Grates









count = 1

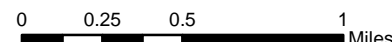
- Legend
- Minuteman Bikeway
  - SUP
  - Unimproved/Informal Path
  - Bike Lane
  - Shared Lane
  - Major Road
  - MMB Intersecting Road
  - Roads\_Local





**count = 8**

-  Minuteman Bikeway
-  SUP
-  Unimproved/Informal Path
-  Bike Lane
-  Shared Lane
-  Major Road
-  MMB Intersecting Road
-  Roads\_Local





# Minuteman Bikeway Trail Inventory Amenity Intensity Map

1/4 mile radius

Gates

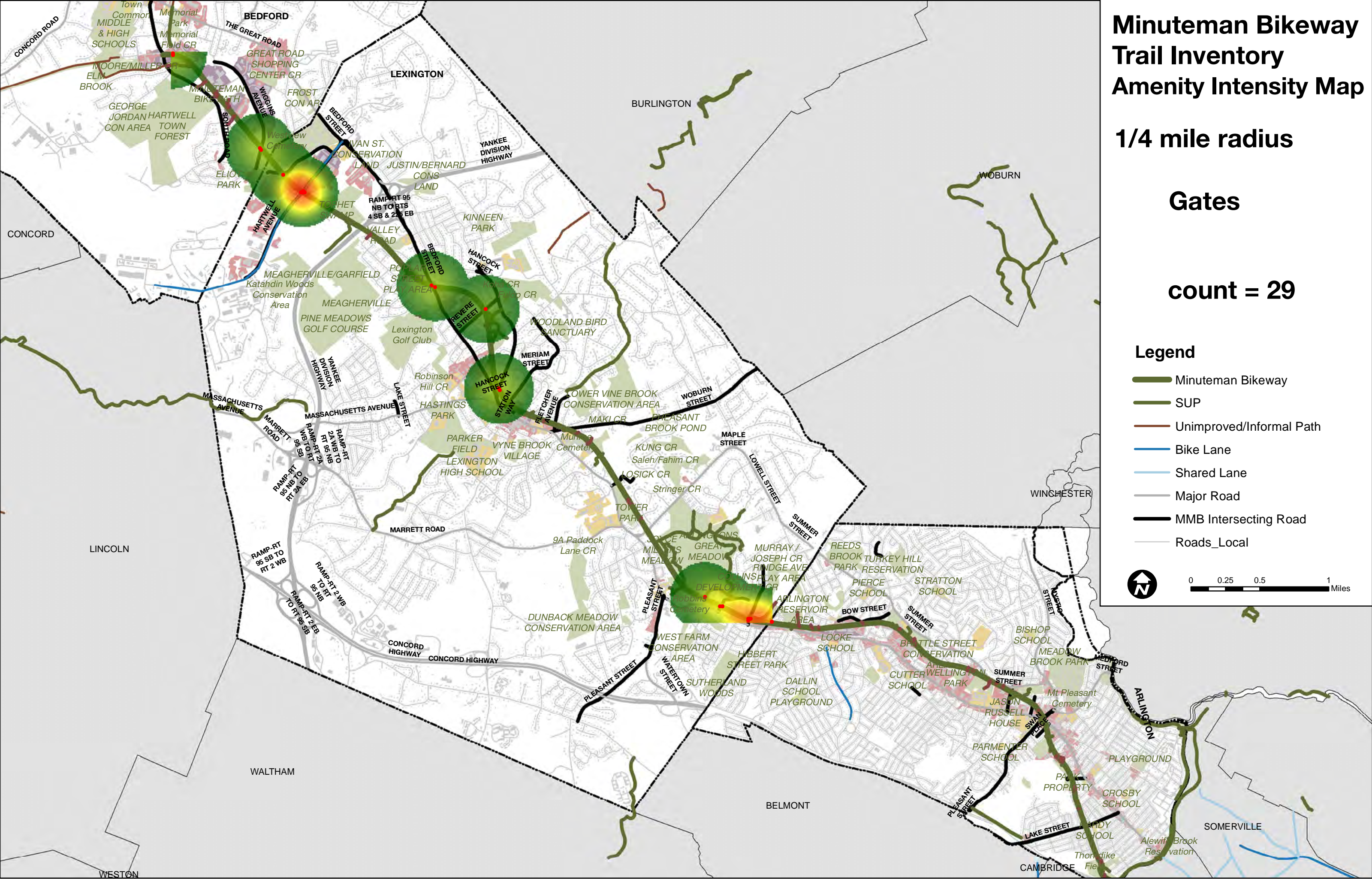
count = 29

### Legend

- Minuteman Bikeway
- SUP
- Unimproved/Informal Path
- Bike Lane
- Shared Lane
- Major Road
- MMB Intersecting Road
- Roads\_Local



0 0.25 0.5 1 Miles





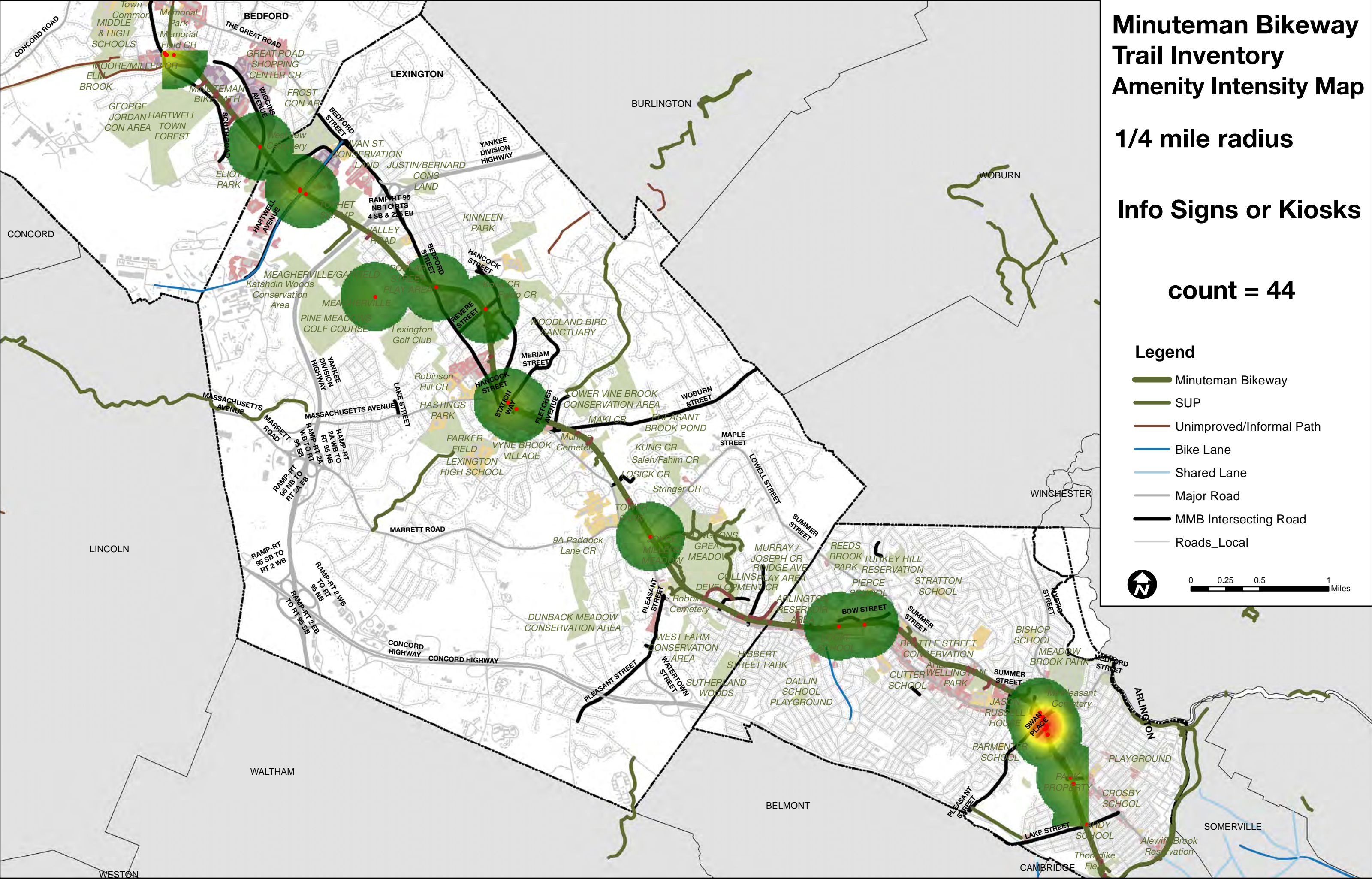
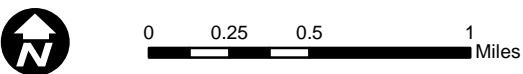
# Minuteman Bikeway Trail Inventory Amenity Intensity Map

1/4 mile radius

Info Signs or Kiosks

count = 44

- Legend
- Minuteman Bikeway
  - SUP
  - Unimproved/Informal Path
  - Bike Lane
  - Shared Lane
  - Major Road
  - MMB Intersecting Road
  - Roads\_Local





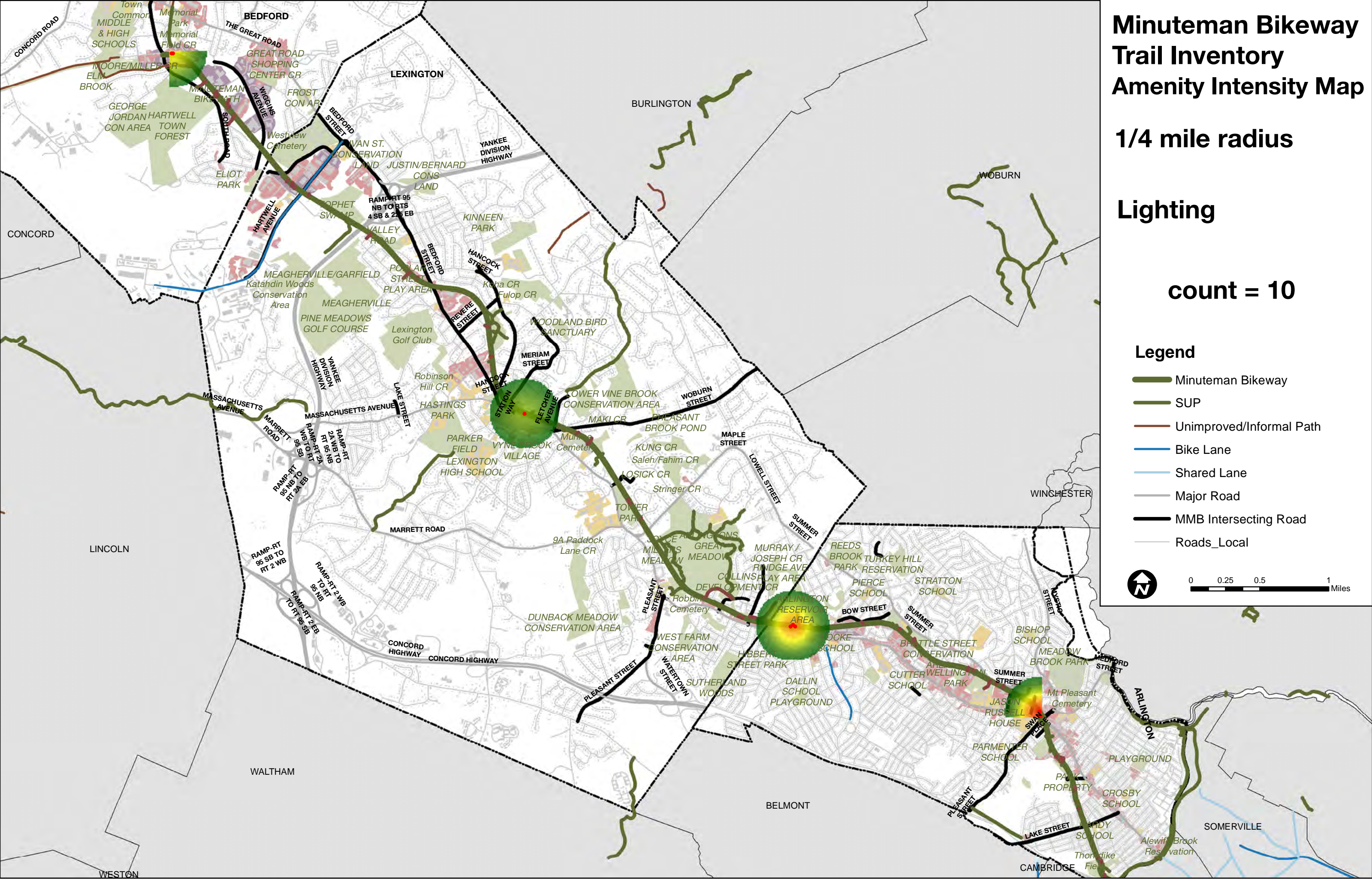
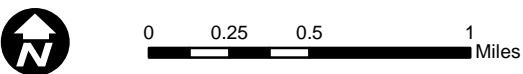
# Minuteman Bikeway Trail Inventory Amenity Intensity Map

1/4 mile radius

Lighting

count = 10

- Legend
- Minuteman Bikeway
  - SUP
  - Unimproved/Informal Path
  - Bike Lane
  - Shared Lane
  - Major Road
  - MMB Intersecting Road
  - Roads\_Local





# Minuteman Bikeway Trail Inventory Amenity Intensity Map

1/4 mile radius

Markers

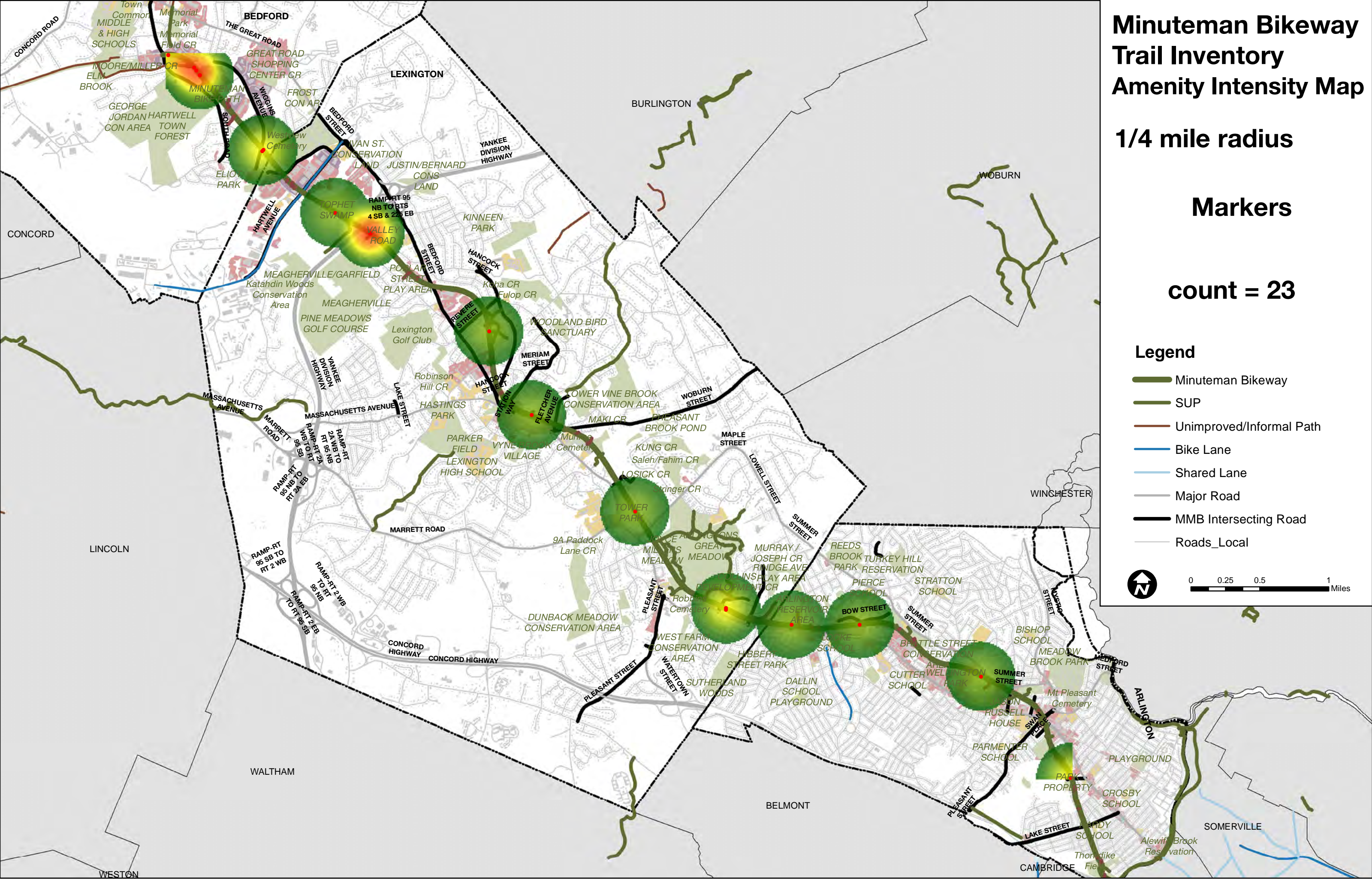
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### Legend

- Minuteman Bikeway
- SUP
- Unimproved/Informal Path
- Bike Lane
- Shared Lane
- Major Road
- MMB Intersecting Road
- Roads\_Local



0 0.25 0.5 1 Miles





# Minuteman Bikeway Trail Inventory Amenity Intensity Map

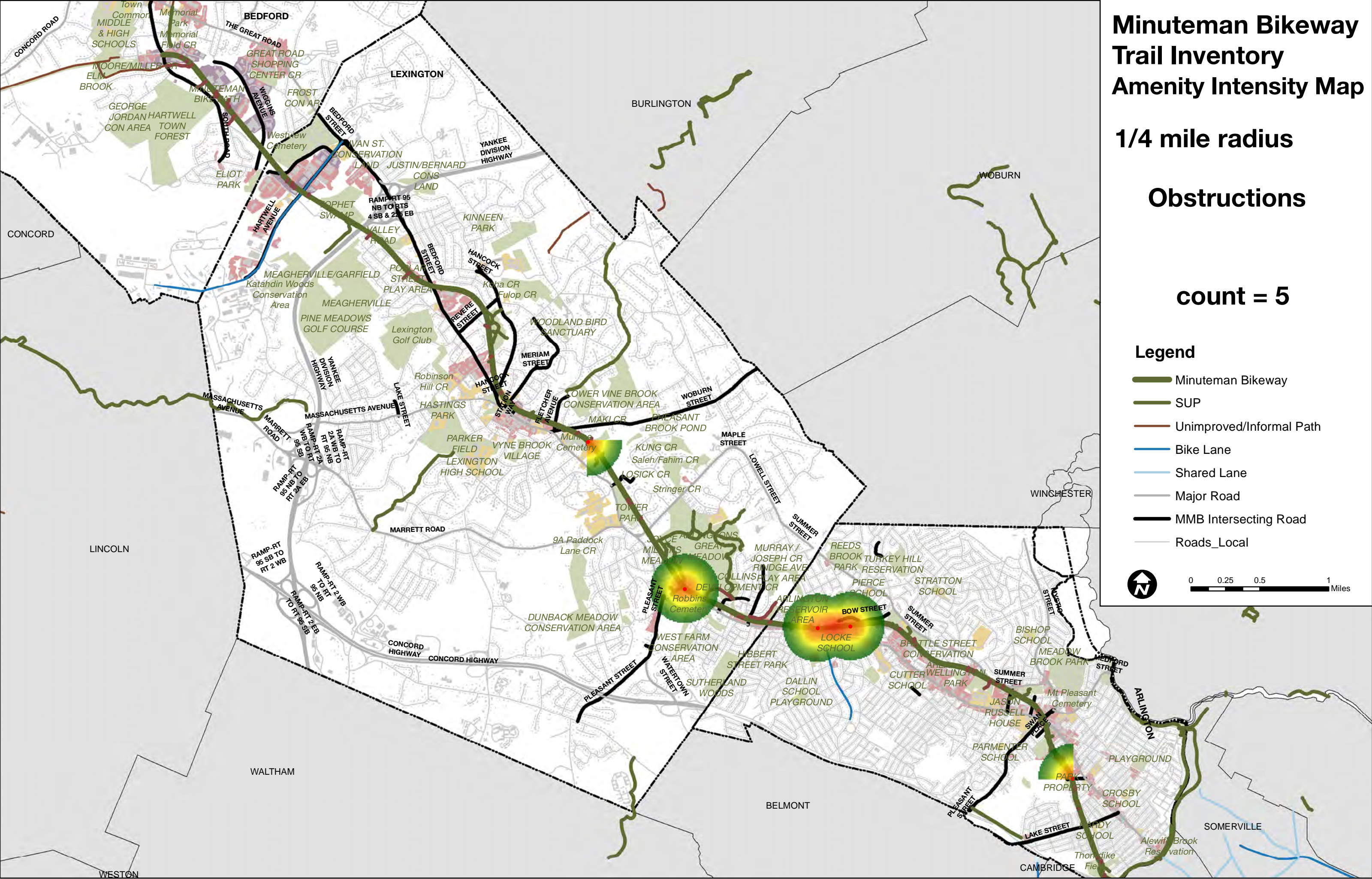
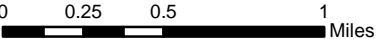
1/4 mile radius

Obstructions

count = 5

### Legend

- Minuteman Bikeway
- SUP
- Unimproved/Informal Path
- Bike Lane
- Shared Lane
- Major Road
- MMB Intersecting Road
- Roads\_Local





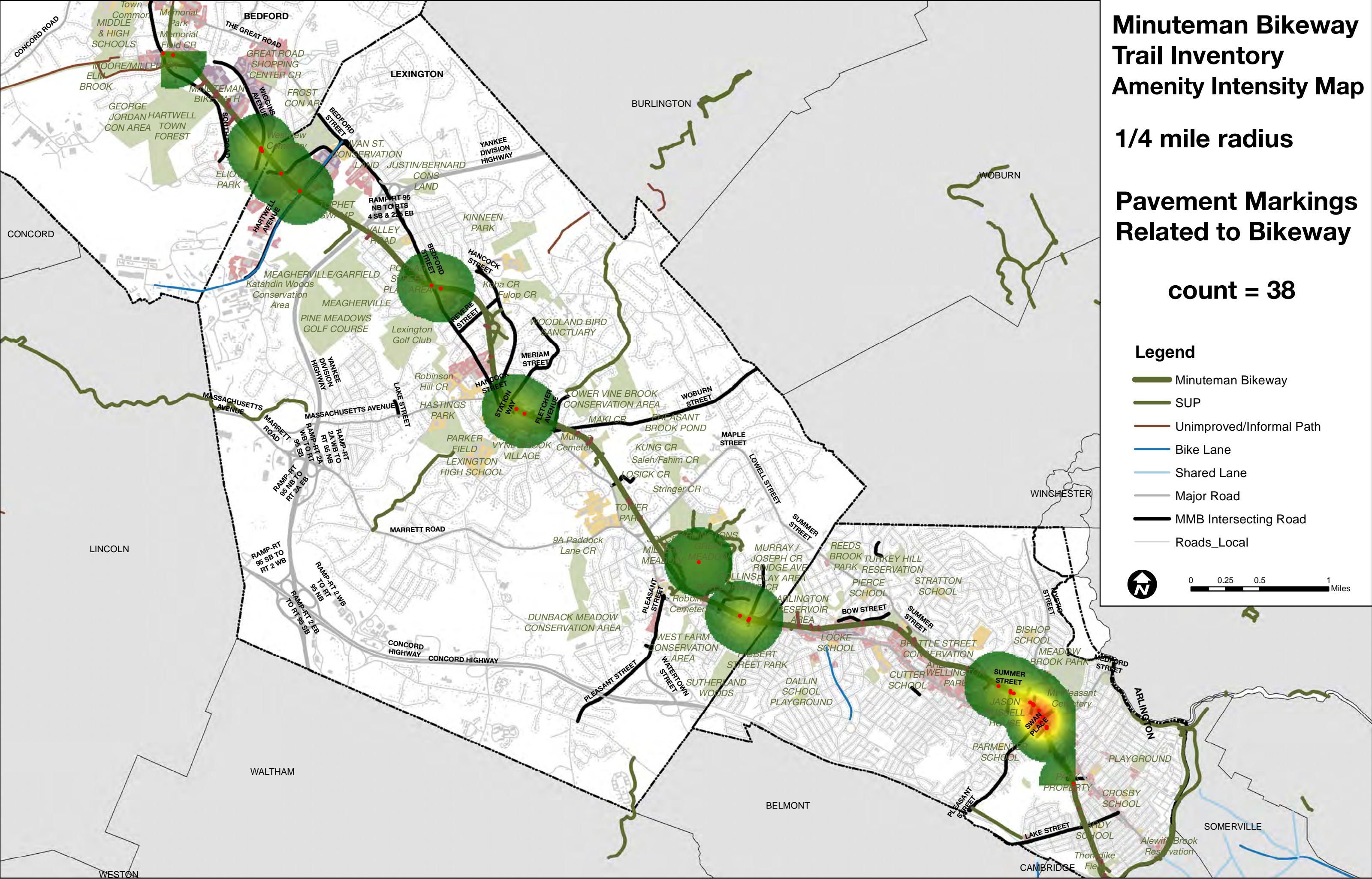
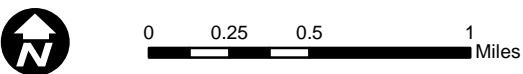
# Minuteman Bikeway Trail Inventory Amenity Intensity Map

1/4 mile radius

## Pavement Markings Related to Bikeway

count = 38

- Legend
- Minuteman Bikeway
  - SUP
  - Unimproved/Informal Path
  - Bike Lane
  - Shared Lane
  - Major Road
  - MMB Intersecting Road
  - Roads\_Local





# Minuteman Bikeway Trail Inventory Amenity Intensity Map

1/4 mile radius

Ped  
Signals

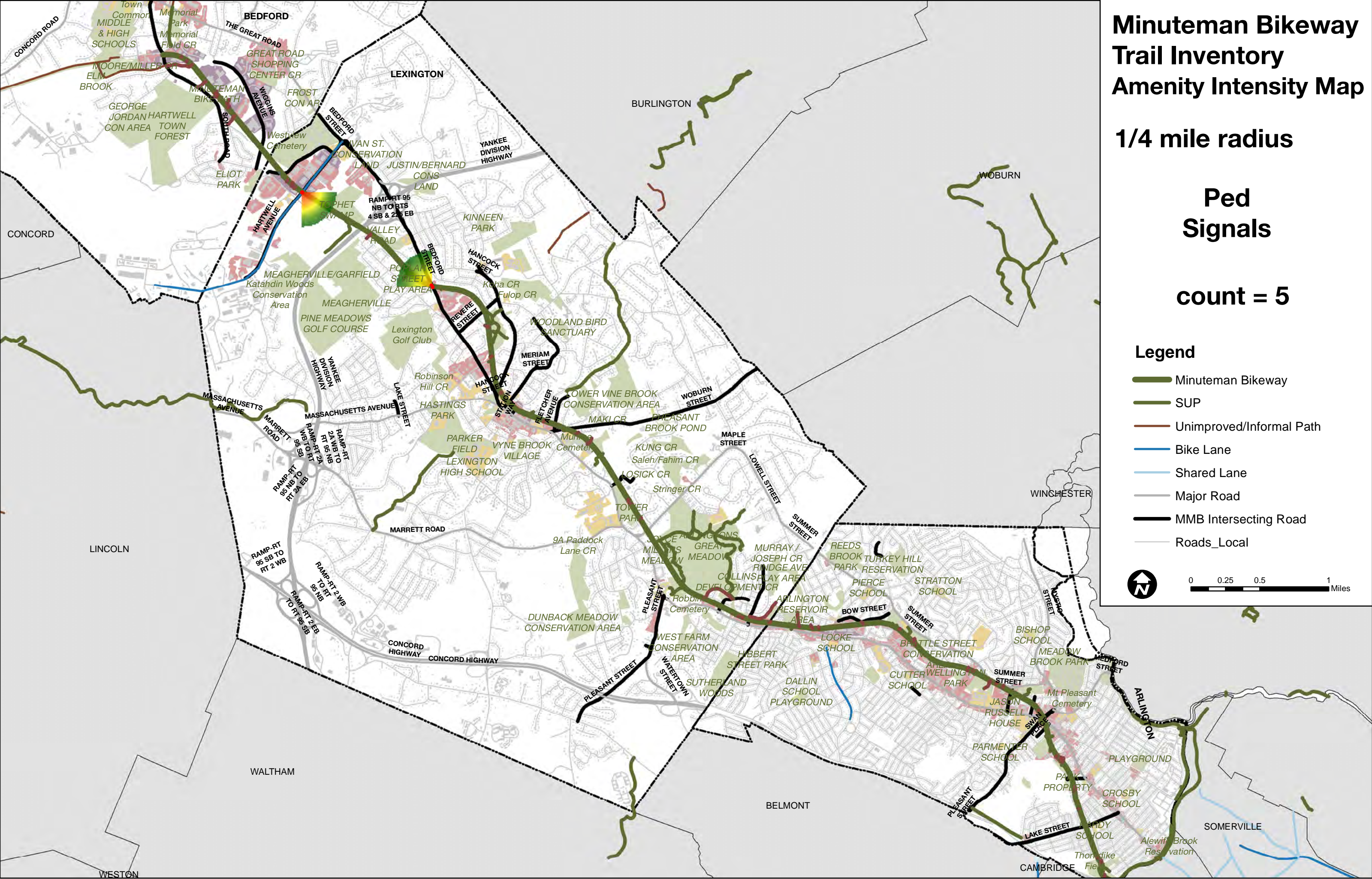
count = 5

### Legend

- Minuteman Bikeway
- SUP
- Unimproved/Informal Path
- Bike Lane
- Shared Lane
- Major Road
- MMB Intersecting Road
- Roads\_Local



0 0.25 0.5 1 Miles





# Minuteman Bikeway Trail Inventory Amenity Intensity Map

1/4 mile radius

Picnic  
Tables

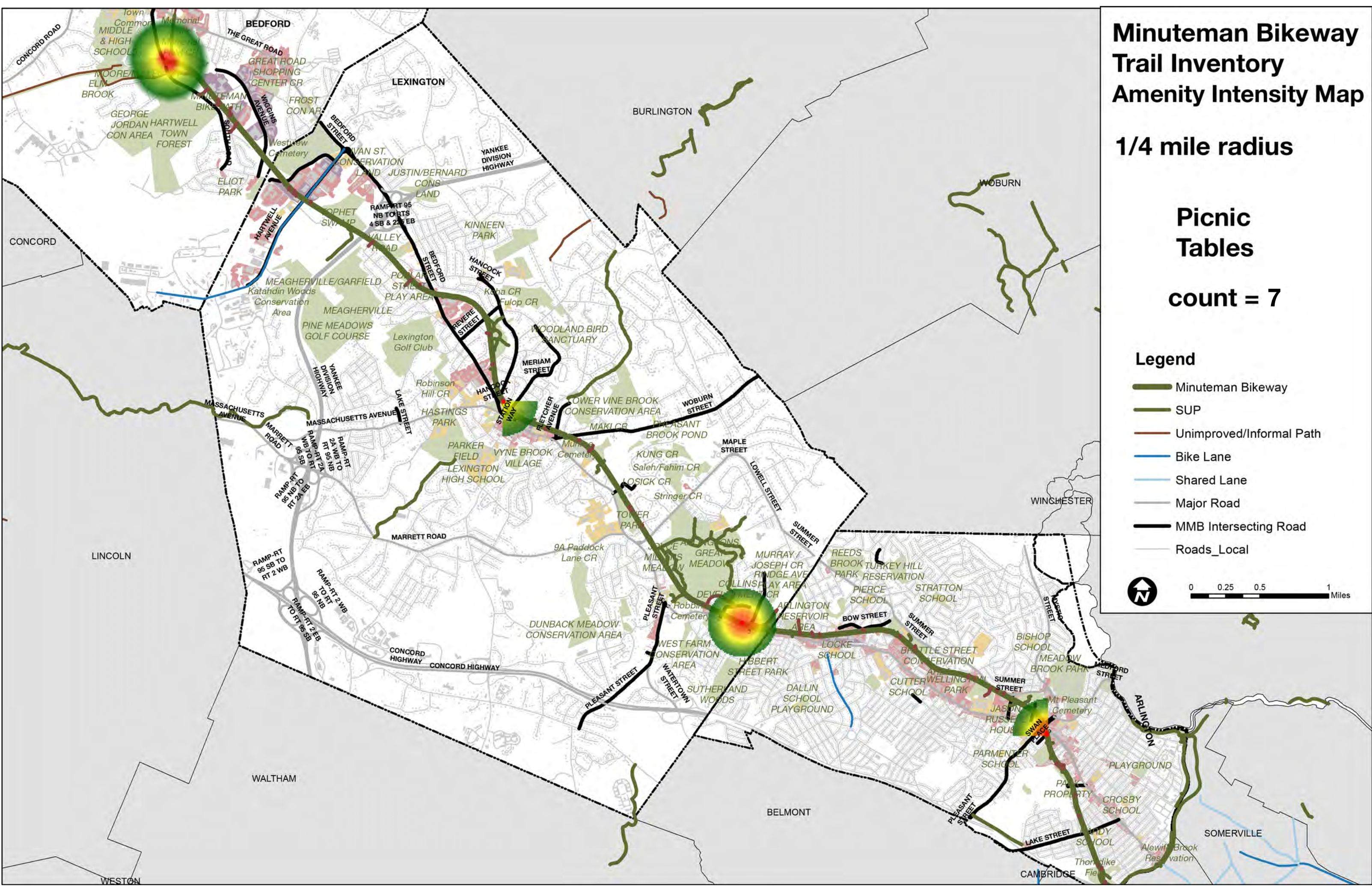
count = 7

## Legend

- Minuteman Bikeway
- SUP
- Unimproved/Informal Path
- Bike Lane
- Shared Lane
- Major Road
- MMB Intersecting Road
- Roads\_Local



0 0.25 0.5 1 Miles





# Minuteman Bikeway Trail Inventory Amenity Intensity Map

1/4 mile radius

Rocks

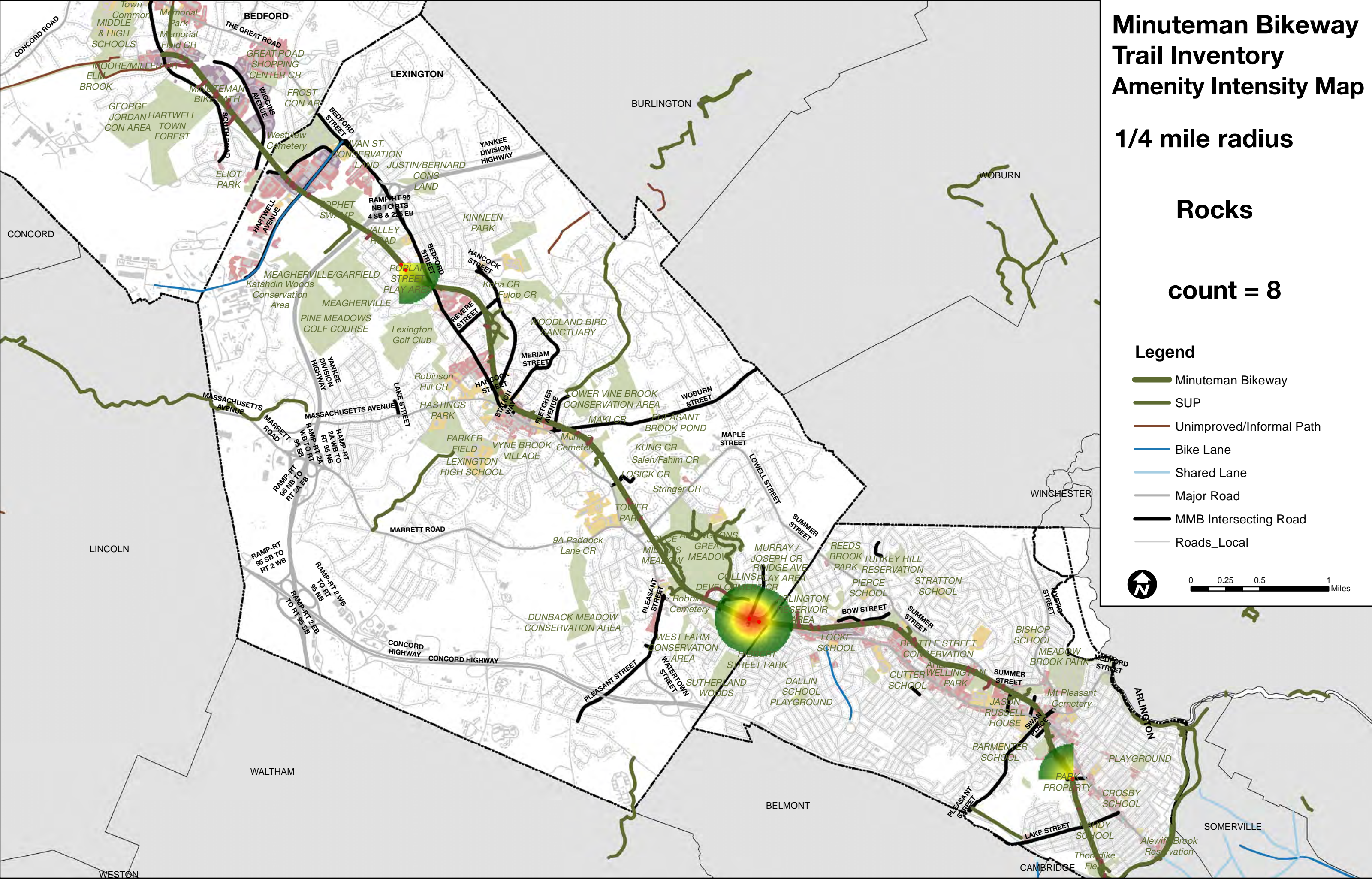
count = 8

### Legend

- Minuteman Bikeway
- SUP
- Unimproved/Informal Path
- Bike Lane
- Shared Lane
- Major Road
- MMB Intersecting Road
- Roads\_Local



0 0.25 0.5 1 Miles



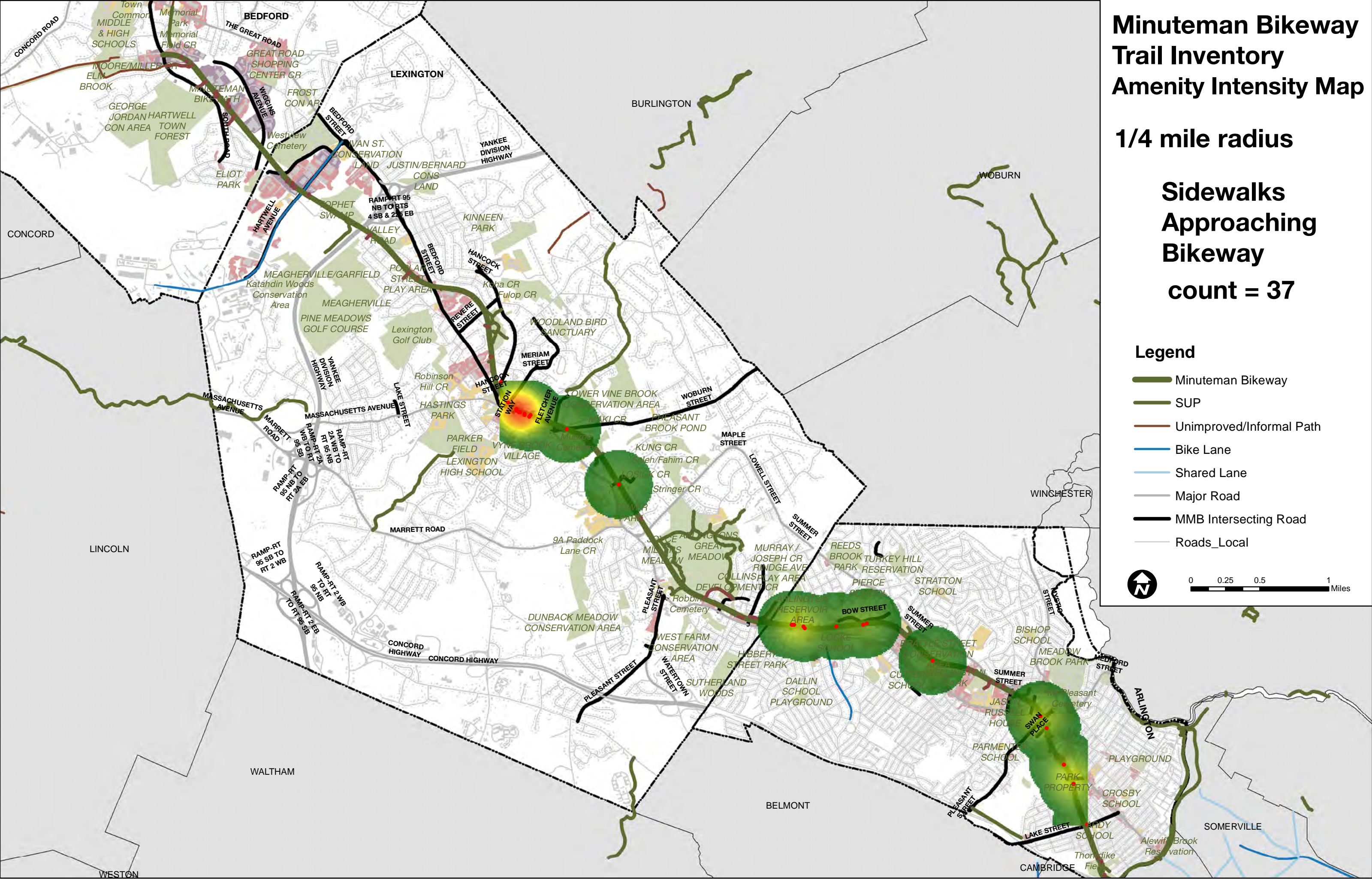
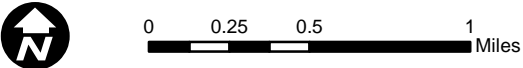


# Minuteman Bikeway Trail Inventory Amenity Intensity Map

1/4 mile radius

Sidewalks  
Approaching  
Bikeway  
count = 37

- Legend**
- Minuteman Bikeway
  - SUP
  - Unimproved/Informal Path
  - Bike Lane
  - Shared Lane
  - Major Road
  - MMB Intersecting Road
  - Roads\_Local



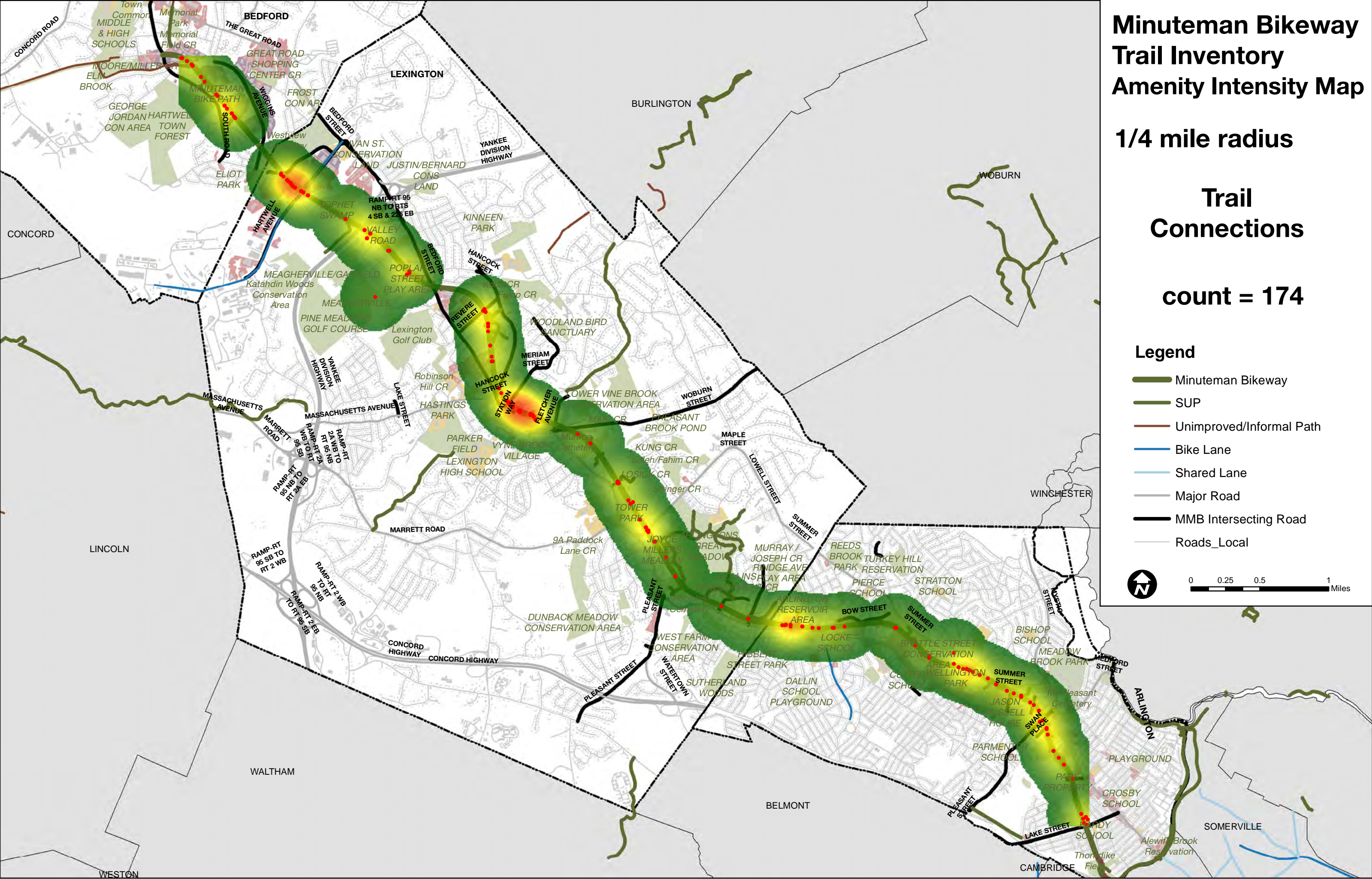
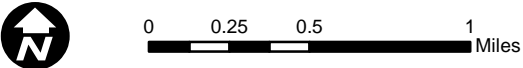


# Minuteman Bikeway Trail Inventory Amenity Intensity Map

1/4 mile radius

Trail  
Connections  
count = 174

- Legend**
- Minuteman Bikeway
  - SUP
  - Unimproved/Informal Path
  - Bike Lane
  - Shared Lane
  - Major Road
  - MMB Intersecting Road
  - Roads\_Local





# Minuteman Bikeway Trail Inventory Amenity Intensity Map

1/4 mile radius

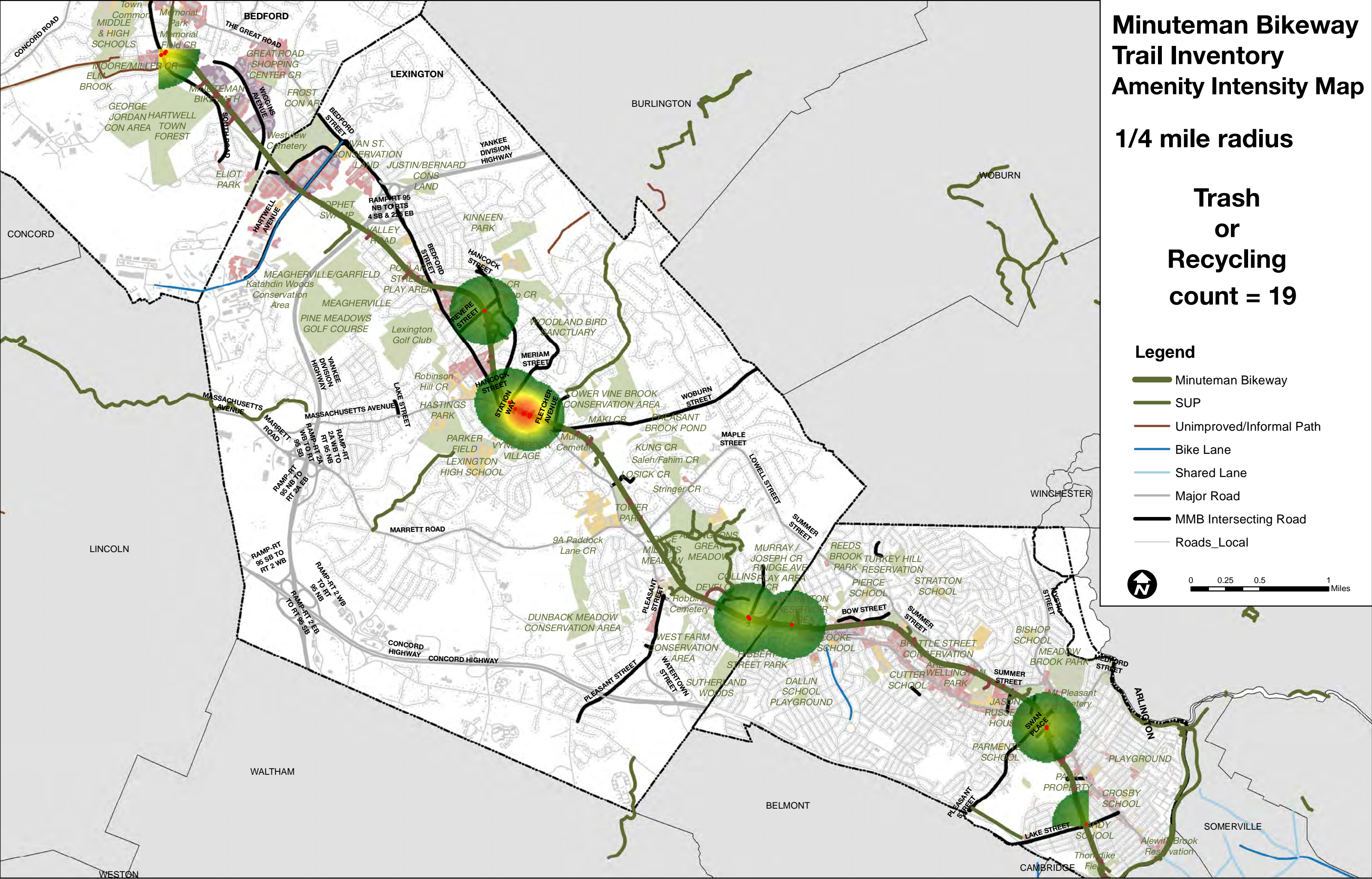
Trash  
or  
Recycling  
count = 19

### Legend

- Minuteman Bikeway
- SUP
- Unimproved/Informal Path
- Bike Lane
- Shared Lane
- Major Road
- MMB Intersecting Road
- Roads\_Local



0 0.25 0.5 1 Miles





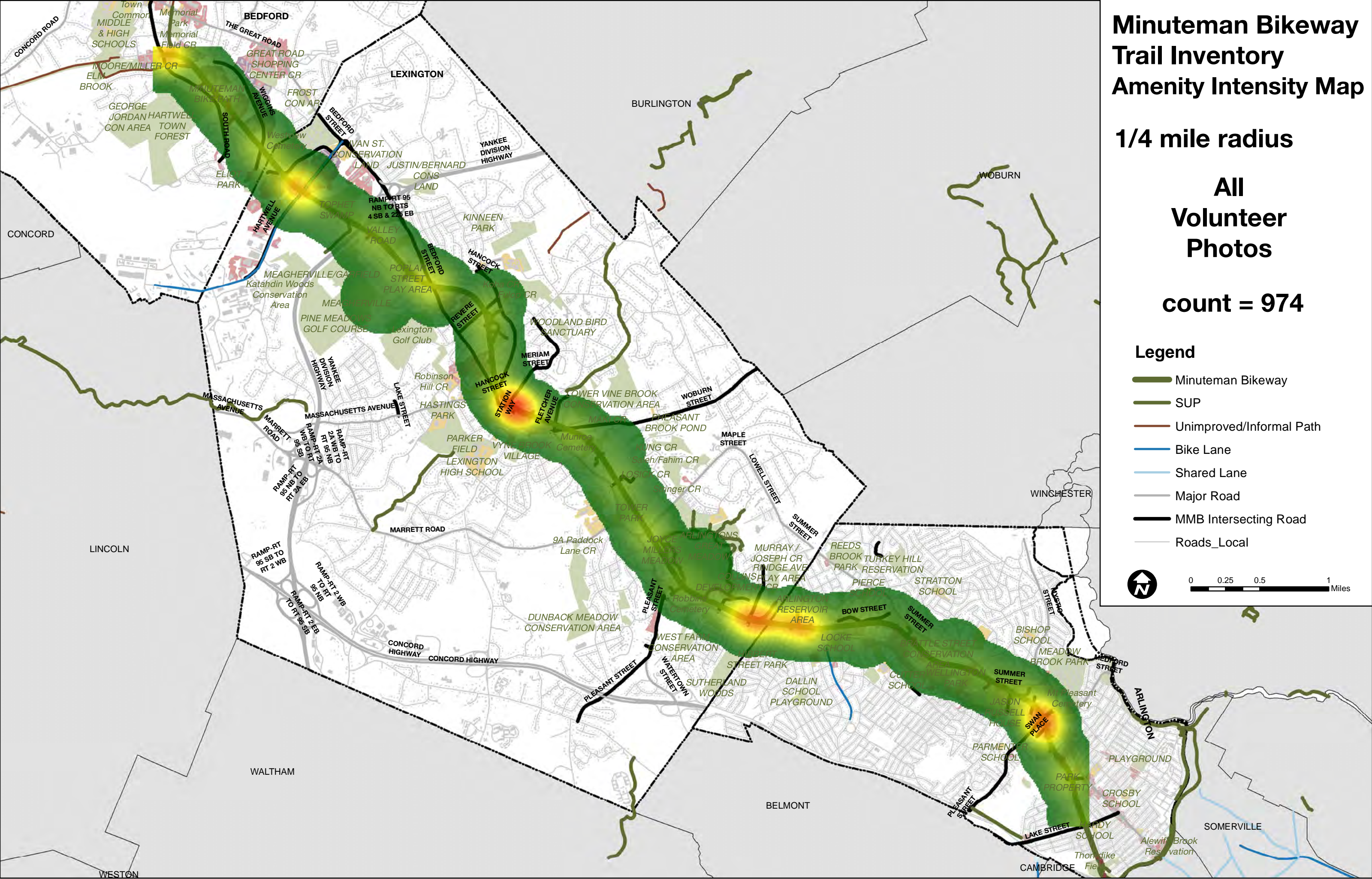
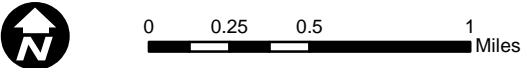
# Minuteman Bikeway Trail Inventory Amenity Intensity Map

1/4 mile radius

All  
Volunteer  
Photos

count = 974

- Legend**
- Minuteman Bikeway
  - SUP
  - Unimproved/Informal Path
  - Bike Lane
  - Shared Lane
  - Major Road
  - MMB Intersecting Road
  - Roads\_Local





# Minuteman Bikeway Trail Inventory Amenity Intensity Map

1/4 mile radius

Benches

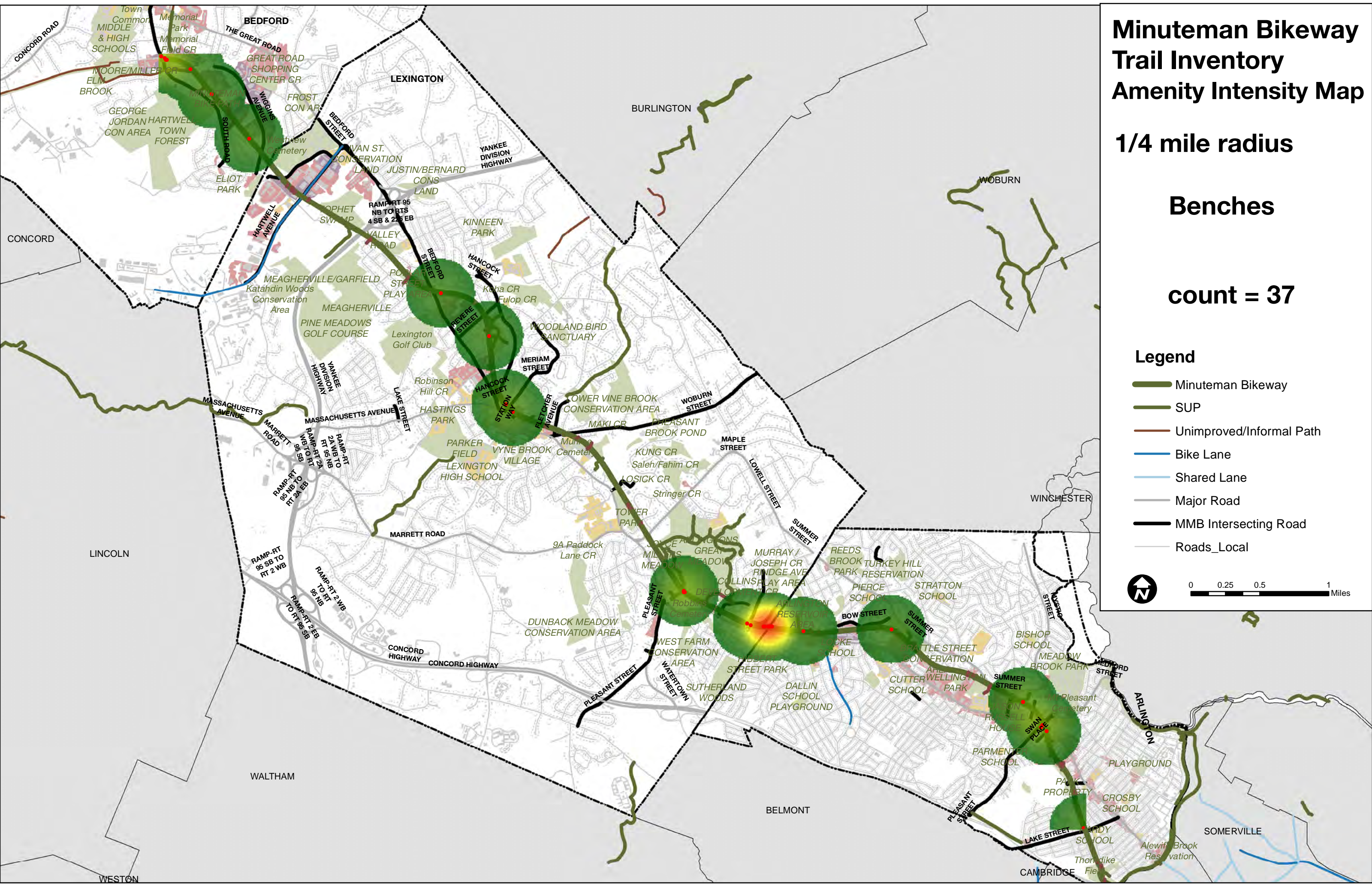
count = 37

### Legend

- Minuteman Bikeway
- SUP
- Unimproved/Informal Path
- Bike Lane
- Shared Lane
- Major Road
- MMB Intersecting Road
- Roads\_Local



0 0.25 0.5 1 Miles



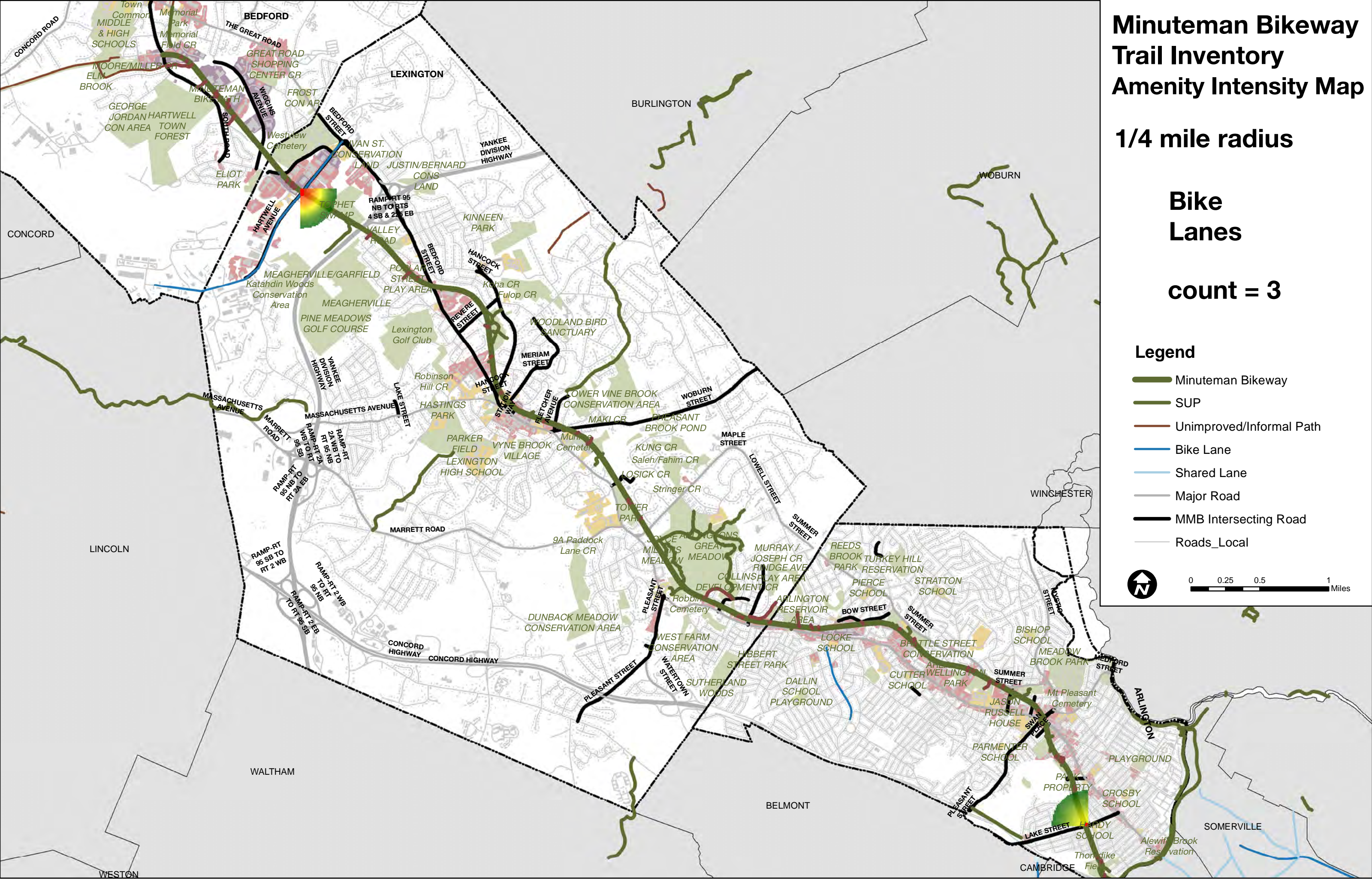
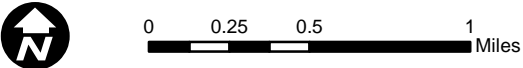


# Minuteman Bikeway Trail Inventory Amenity Intensity Map

1/4 mile radius

**Bike  
Lanes**  
  
count = 3

- Legend**
- Minuteman Bikeway
  - SUP
  - Unimproved/Informal Path
  - Bike Lane
  - Shared Lane
  - Major Road
  - MMB Intersecting Road
  - Roads\_Local





# Minuteman Bikeway Trail Inventory Amenity Intensity Map

1/4 mile radius

Manholes

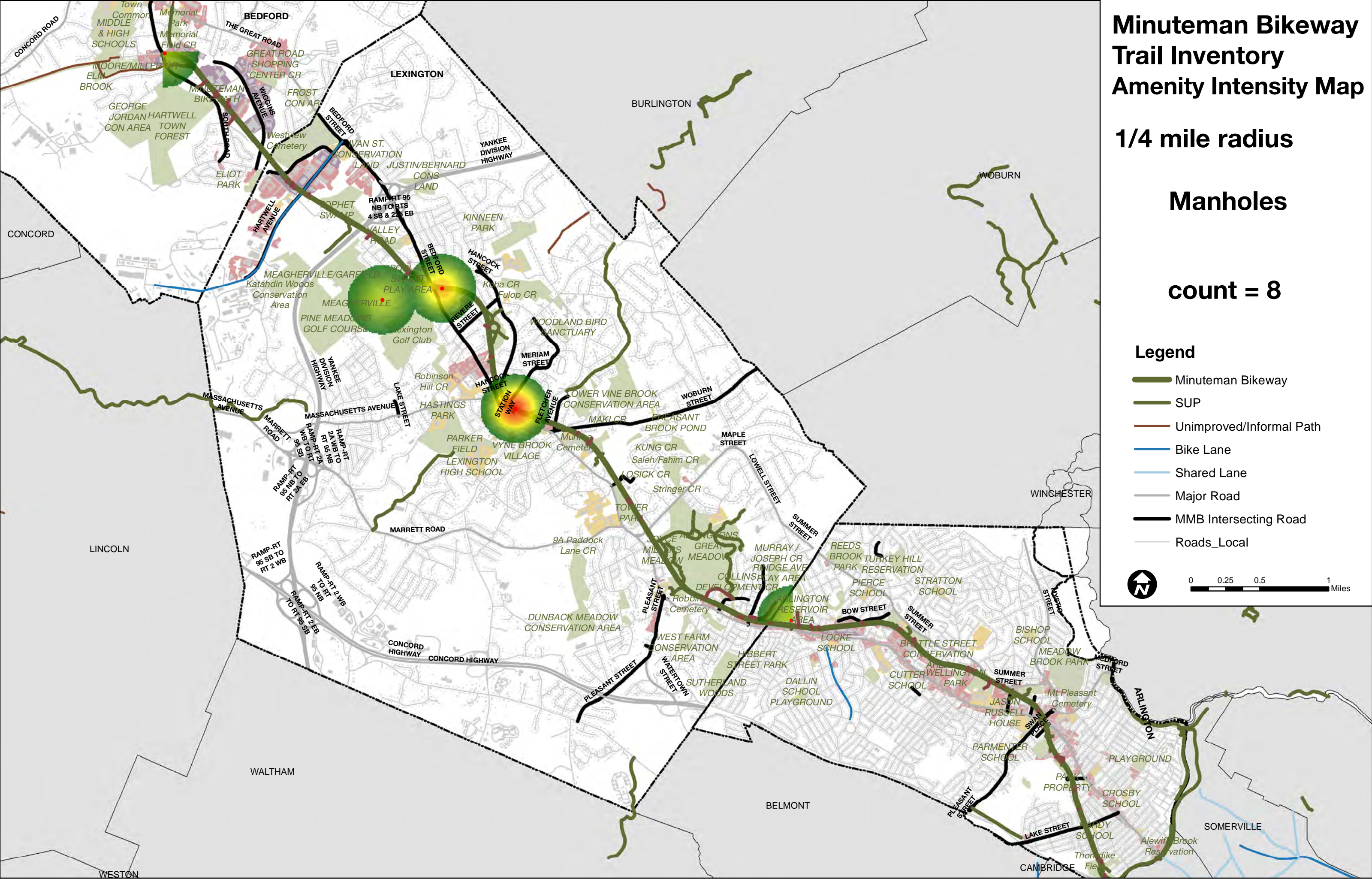
count = 8

### Legend

- Minuteman Bikeway
- SUP
- Unimproved/Informal Path
- Bike Lane
- Shared Lane
- Major Road
- MMB Intersecting Road
- Roads\_Local



0 0.25 0.5 1 Miles







**FORT HILL**  
*infrastructure*

# Response to RFP Town of Arlington Sustainable Transportation Plan

Mr. Adam W. Chapdelaine  
Town Manager  
Town of Arlington  
730 Massachusetts Avenue  
Arlington, Massachusetts 02476

RE: RFP #19-50-Sustainable Transportation Plan  
Technical Proposal

November 5, 2019





November 5, 2019

Mr. Adam W. Chapdelaine  
Town Manager  
Town of Arlington  
730 Massachusetts Avenue  
Arlington, Massachusetts 02476

RE: RFP #19-50-Sustainable Transportation Plan – Technical Proposal

Dear Mr. Chapdelaine:

The Fort Hill Companies LLC (Fort Hill) is pleased to submit this proposal to provide transportation planning services for the development of a Sustainable Transportation Plan for the Town of Arlington. Our team brings a unique set of experiences and credentials to the Town's critical planning efforts. Our team is uniquely qualified to provide the desired services to the Town.

Fort Hill is a multidisciplinary architecture and engineering firm with deep roots in the planning and design of transportation systems. While we are a small, specialized firm, we have an outsized impact on the built environment. We have executed projects on five continents and in 19 countries in the last ten years. We have also played a key role in many local projects. We pride ourselves in our ability to think creatively and critically, while simultaneously producing realistic and executable plans.

Our team will be led by myself as the Principal-in-Charge. I will also serve in a technical capacity, providing key technical expertise in the areas of sustainable transportation systems, connected and autonomous vehicles, shared electric and autonomous mobility, and mobility as a service (MaaS). I hold a Bachelor of Science in Electrical Engineering from Norwich University, a Master of Sustainability Leadership from the Judge Business School at Cambridge University, a Master of Transportation and Urban Systems from North Dakota State University, and a Juris Doctor from Suffolk University Law School. I previously served as the Director of Traffic and Parking in next-door Somerville. I have also served in a professional capacity as a traffic engineer with the Massachusetts Highway Department (now the Massachusetts Department of Transportation). For the last 15 years, I have served as the founder and principal of transportation planning and engineering firms. I am a licensed professional traffic engineer and an American Institute of Certified Planners (AICP) Certified Transportation Planner.

STRATEGIC PERSPECTIVE. EXCEPTIONAL RESULTS.



Locally, I have served as the Chair of the Infrastructure Council of the Urban Land Institute (ULI) Boston Council. I have served in a leadership capacity with the Boston Society of Civil Engineers and the New England Section of the Institute of Transportation Engineers. I served on the Boston BRT committee and the Transportation Steering Committee of the Boston Green Ribbon Commission.

I will be joined in this assignment by Jeff Levine, AICP, of Levine Planning Strategies LLC. Jeff will serve as the Project Manager and will be responsible for the development and delivery of the Sustainable Transportation Plan. Jeff will be responsible for day-to-day interactions with the Town and for managing the resources necessary to complete the plan to the Town's satisfaction. Jeff holds a Bachelor of Arts in Public Policy from Wesleyan University and a Master of Planning (Economic Development) from the Humphrey Institute of Public Affairs at the University of Minnesota. Jeff is a member of the American Institute of Certified Planners (AICP). Jeff is currently on the faculty of the Department of Urban Studies and Planning at the Massachusetts Institute of Technology (MIT). Prior to his MIT appointment, Jeff was the Director of Planning & Urban Development for the City of Portland, ME. He has previously served as the Director of Planning & Community Development for the Town of Brookline and as a Director in the Office of Housing & Community Development for the City of Somerville, MA.

Per the instructions in the RFP, I am providing the following contact information for the Town's use:

Contact Name: William F. Lyons Jr., PE, AICP  
Telephone Numbers: Office: (877) 305-4163, Mobile: (978) 996-4252.  
Email address: wlyons@forthillcos.com

We acknowledge receipt of Addendum #1 to the Request for Proposals.

We are very excited about the opportunity to prepare the Town of Arlington's Sustainable Transportation Plan. We look forward to rolling up our sleeves and getting to work!

Sincerely,  
FORT HILL COMPANIES LLC



William F. Lyons Jr., PE, AICP  
President

---

**STRATEGIC PERSPECTIVE. EXCEPTIONAL RESULTS.**

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## Team Experience

**Fort Hill Companies LLC (Fort Hill)** is a Service Disabled Veteran Owned Business Enterprise (SDVOBE) and multidisciplinary architecture and engineering firm with deep roots in the planning and design of transportation systems. While we are a small, specialized firm, we have an outsized impact on the built environment. We have executed projects on five continents and in 19 countries in the last ten years. We have also played a key role in many local projects. We pride ourselves in our ability to think creatively and critically, while simultaneously producing realistic and executable plans.

Fort Hill's public clients have included:

- Municipalities, including the Cities of Lawrence, Somerville, Boston, and Newton in Massachusetts and the City of Portland, ME.
- Commonwealth of Massachusetts, including the Massachusetts Bay Transportation Authority (MBTA), the Massachusetts Department of Transportation (MassDOT) - Highway Division, the Division of Capital Asset Management and Maintenance (DCAMM), and the Department of Housing & Community Development (DHCD).
- The United States Government, to include the US Army Corps of Engineers, the Federal Highway Administration (FHWA), the US Department of Transportation (DOT) – Volpe Center, the US Agency for International Development (USAID), and the National Park Service.

Fort Hill also services a wide array of private clients, to include:

- The Cronin Group
- Cabot, Cabot, & Forbes
- Normandy Partners
- Grossman Marketing
- Hamlen Development
- Barnat Development

**Levine Planning Strategies, LLC**, is a small, New England-based firm committed to building communities by using data and effective planning tools. So often, planning processes are seen as battles. Instead, we see them as conversations, with a goal of coming up with solutions. We focus on housing and transportation planning and how they relate to sustainable land use.

Whether helping a municipal staff on their land use code, or helping a community develop realistic and dynamic policies and plans, or developing tools to leverage land use changes into multimodal transportation improvements, we see the value of planning for developers, and the value of developments to implement plans.

Past transportation projects that we have been involved in include:

- The initial launch of Hubway bikeshare in Brookline;
- Planning for the Assembly MBTA station in Somerville;
- Planning for the Green Line extension in Somerville;
- Obtaining federal funding for transportation projects via the Transportation Improvement Program process; and
- Planning for integration of transit and land use in Portland [ME] through creation of a Downtown Transit Oriented Development Tax Increment Finance zone and other tools.

As a small, local firm, we care deeply about client satisfaction. We want to make sure our work is useful for municipalities, as we know that their staff does the hard work of taking plans and studies and making them happen.

**Portland Design Co** is a small woman-owned and run studio nestled in downtown Portland's Arts District in the State Theater Building. Portland Design Co is a proud advocate of independent design(ers). Here, we celebrate our small, intentional team bringing big results to our clients through a well-rounded vision and approach. We believe the best design is less design, and focus on simplicity, function, and reason.

Portland Design Co was founded by LK Weiss, a Portland native, in 2010 during her studies at Maine College of Art, which resulted in her graduation with honors in 2011 with a BFA in graphic design. In 2018, LK partnered with Abby Towne, a Kennebunk native and MECA graduate, to strengthen Portland Design Co's fast moving, high quality agency-like momentum with a boutique and personal feel.

Together, our experience consists of a diverse range of clients from small local businesses to national and corporate companies, as well as government and nonprofit sectors. Work includes branding and identity design, websites, annual reports, icons and infographics, marketing materials such as brochures and posters, corporate design such as benefits packages, employee informational and onboarding packets, educational collateral, signage, and apparel and product design.

In 2017, LK joined the creative committee with Maine Ad + Design (formerly Maine Ad Club, founded in 1923) to lead their rebranding initiative which launched in August 2018. LK continues to mentor high school students and newcomers to the U.S. who are interested in the design industry.



## Project Experience

Our team brings an array of relevant experience to this assignment. Bill and Jeff have both served in municipal government and understand the unique demands of municipal planning from first-hand experience. While our experience in government is highly relevant, we also know how to deliver a transportation plan as a team of consultants. Representative experience include the following projects.

### City of Portland – Parking Study for the Eastern Waterfront and the Old Port

Fort Hill prepared an extensive parking study, including an inventory of all on and off-street parking, current and projected parking demand, and innovative strategies to make transportation and the parking system more economically and socially sustainable over time. One of the key outcomes of the study included a recommendation to use subsidized ride-share programs to make parking more socially and economically sustainable for kitchen and janitorial staff working in the downtown area.

### City of Lawrence – Citywide Traffic Engineering Services

Fort Hill is currently serving the City of Lawrence on a task order basis to support all transportation planning and traffic engineering citywide. Some of the task orders include the modernization of subdivision control standards to make them more sustainable, the development of safe routes to school programs, and the implementation of citywide and location specific speed limit programs. We have provided the city with a wide array of services under our task order contract.

### City of Somerville – Bike Infrastructure Design

Fort Hill assisted the City of Somerville Department of Traffic & Parking with the development of standards for bicycle pavement markings and signage.

### City of Newton – Newton North High School

Fort Hill served as the traffic engineer for the permitting and design of the Newton North High School project. This work included extensive study of current and projected traffic patterns, especially active transportation modes and pedestrian circulation. This engagement required extensive interaction with the Board of Aldermen, the public, and staff members across city government, including the mayor's office.

### Massachusetts Bay Transportation Authority Green Line Extension

Fort Hill served as the transportation planners and traffic engineers responsible for developing the preliminary designs for each of the more than forty intersections to be improved as part of the Green Line Extension Project, as well as the 7 new stations to be constructed as part of the project. As a precept of our work, we were encouraged to focus on sustainable solutions that did not involve parking if at all possible. Fort Hill interacted extensively with the staff of the City of Somerville, as well as the Cities of Cambridge and Medford.

### Seaport Leadership Group – Seaport Mobility Initiatives

As a consultant to the Seaport Leadership Group, a consortium of industry and public agencies in Boston's Seaport, Fort Hill assisted in the development of a strategic framework to implement the key recommendations of the South Boston Waterfront Sustainable Transportation Plan. The key recommendations included nine initiatives, around which Fort Hill developed an implementation plan. One of the most important initiatives, the water ferry from Fan Pier to North Station, was implemented in less than two years and has been a resounding success.

### MassPort Parcel H in South Boston

As part of a development team pursuing the development rights for Parcel H, Fort Hill has served as the mobility consultant developing the transportation aspects of the project. The central theme of the project is to serve as a transit hub. Fort Hill has provided key guidance on the development strategy, to include a gold standard bus rapid transit station in the heart of the building.

### St. Regis Residences – Boston Seaport

Fort Hill served as the civil and transportation engineer for this project, which includes a 22 story residential tower and subsurface parking on a 3,000 square foot parcel at the edge of Boston Harbor. Fort Hill was responsible for developing a carefully orchestrated traffic management plan that included rideshare programs, valet programs, and mechanical parking plans. The project also required careful attention to resiliency issues due to the flood risk and regulations affected development in flood plains.

### The Overlook at St. Gabriel's – Brighton

Fort Hill served as the transportation consultant for this project, which includes the redevelopment of St. Gabriel's monastery into a vibrant apartment community. Fort Hill developed a creative package of transportation demand management techniques to reduce auto dependency and parking burdens. In conjunction with rideshare companies Uber and Lyft, Fort Hill developed a rideshare application that would subsidize pooled rideshare trips for tenants in exchange for reduced parking requirements and lease riders preventing the ownership of a car on the property.

### National Park System – Gettysburg National Military Park Trail Development

Fort Hill served as the traffic engineer and transportation planner on a team assigned to evaluate and assess the walking trail systems for the National Park Service at the Gettysburg National Military Park. Fort Hill played an integral role in the development of sustainable strategies to preserve the historical landscape at the park, while simultaneously improving the visitor experience and making the park more accessible for a wide range of visitors. Fort Hill played a critical role in the development of design standards and overall strategies to improve access.

### US Army Corps of Engineers Recreational Area Congestion Management Study

Under contract to the Eastern Federal Lands Division of the Federal Highway Administration, Fort Hill conducted congestion management studies at various recreational facilities owned by the US Army Corps of Engineers. The purpose of the studies was to identify key performance indicators of the traffic at these facilities and develop strategies to reduce congestion and increase sustainability for these sensitive recreational sites.

### Republic of Colombia National Transportation Capital Investment Strategy

Under contract to the US Army Corps of Engineers, Fort Hill prepared a national capital investment strategy for the nation's roadway system to be co-executed by the Ministries of Defense and Transportation. Fort Hill developed an investment strategy with three goals. First, to improve transportation connectivity to the south as a result of the end of the civil war. Second, to promote commerce in these previously ungoverned areas of the country. And finally, to promote economic activity while reasserting central government authority. Fort Hill developed a \$2 billion plan to re-establish and recapitalize a long neglected roadway network throughout the countryside.



## Workplan

In initiating this study, the Town of Arlington shows an understanding that transportation is changing, and wants to plan for those changes. The evolving transportation market is driven by both technological innovations and investments of capital on the private and public sectors. When changes occur, they occur quickly and users adapt.

While this changing market is exciting, it is also hard to plan for. There is also risk involved with being too proactive. A number of these initiatives will fail, either through a lack of users, a lack of safety, or a lack of financial viability. In fact, the mantra in tactical urbanism is to “fail often, and fail fast” meaning that a lot of ideas need to be tried and discarded to find the best solutions in a rapidly evolving environment. The dockless bikeshare market, for example, has yet to prove that it will be a sustainable transportation option in the future.

These changes are revealed in looking at how much has changed since the 2015 Arlington Master Plan. While that plan included good, and still relevant, goals, even those four years have revealed new opportunities and challenges. Our approach to this Sustainable Transportation Plan will be to build on that good work, update it when necessary, and add additional goals and implementation steps to keep up with the changing market.

### 2015 Master Plan

The 2015 Arlington Master Plan had a number of recommendations related to transportation planning:

- Development of a Complete Streets Policy
- Creation of Better Pedestrian Conditions
- Improve the Minuteman Bikeway
- Improve Public Transportation
- Manage Parking in Commercial Areas
- Reconsider Residential Parking Policies
- Address Private Ways
- Reduce Congestion

The Town has taken steps to implement some of these recommendations. The 2016 Complete Streets Policy was a good step forward. Grants received since that time have improved pedestrian conditions and bicycle accommodations. The Bus Rapid Transit pilot on Massachusetts Avenue was a bold and risky move that appears to have paid off.

However, there are initiatives taken that are not directly coming from these goals. The dockless bikeshare program is one example. There are emerging technologies, such as ride share through Transportation System Companies like Uber and Lyft, that are not dominant in Arlington yet, but will likely affect the market in the future. The extension of the Green Line to Somerville, perhaps right to the Arlington border on Alewife Brook Parkway, deserve detailed planning attention as well.

### Our Approach

Our team understands how hard it is to make changes. We also understand how important it is to show short-term results in order to convince Town Meeting to spend more money on projects. We believe that trying “tactical urbanist” projects as pilots is important to long-term change. On the other hand, the risks

are high when you pilot a project. If it is not properly explained, it is likely to be received skeptically by the public.

At the same time, we see changes on the horizon. While autonomous vehicles are not here yet, and we can't easily predict when they will come, we believe that once they are ready for use, they will quickly take a large portion of the market. This raises the question of readiness - will the Town be able to handle this quick change? While autonomous vehicles may reduce the need for parking, they have the potential to increase traffic loads on busy streets. At the same time, autonomous vehicles also hold great promise to dramatically improve mobility options for disadvantaged populations, like the elderly and the disabled. In addition, autonomous rideshares are already radically altering curb space at retail establishments, causing us to reassess everything from design standards to zoning codes. How can the Town have policies and plans ready for when that change occurs, without knowing exactly when that will be?

This combination of seeking short term opportunities, and thoughtful plans for longer-term changes, is needed in developing this plan. Our team is well positioned to provide this combination and put Arlington in a leading role in planning for future mobility.

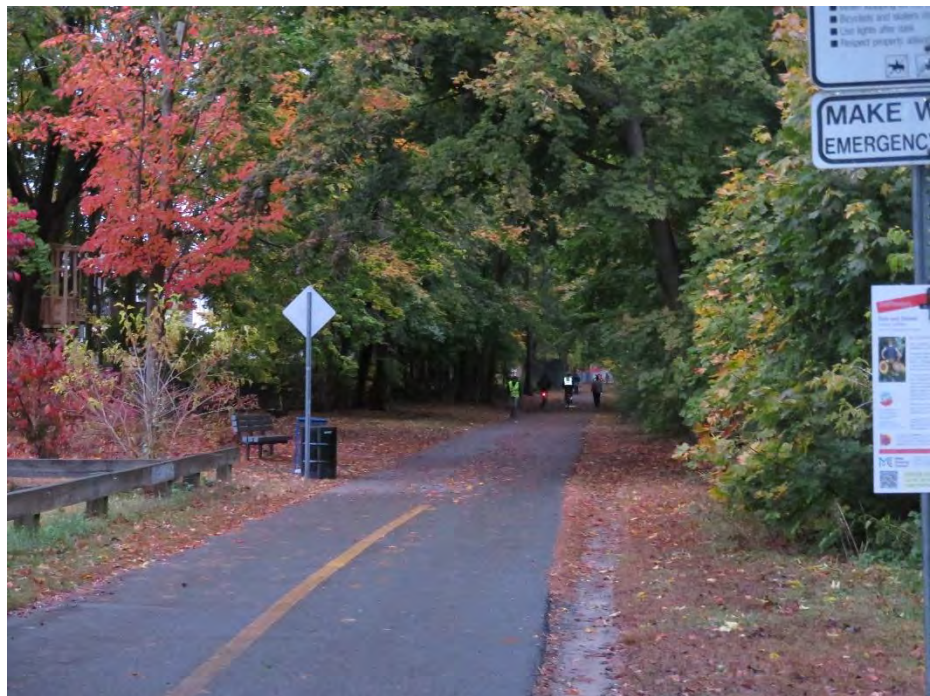
### **What is “Sustainable Transportation”?**

Clearly Arlington has taken the first steps towards Sustainable Transportation. Steps such as adopting a Complete Streets policy, and initiating a BRT project, indicate a commitment to best practices. In order to get to a truly sustainable system, the Town will have to take its efforts to the next level.

While it is premature to recommend any specific actions until data has been collected, we can offer some ideas based on some initial observations. These ideas show the types of actions that will be needed to raise the bar and achieve sustainability:

#### **Signalize the Minuteman?**

The bicycle volumes on the Minuteman Bikeway are significant, but may be limited by the number of major street crossings. In order to accommodate these users, consideration should be given to creating signalized crossings of major roadways, just as would be provided at conventional intersections.







**Eliminate Right Turns on Red? Or keep them?** Recent project related to sustainable transportation, such as *Newton Leads 2040*, recommend eliminating rights turns on red at intersections in order to improve pedestrian safety. At the same time, however, Massachusetts originally permitted right turns on red in order to *improve* air quality. The tradeoffs should be analyzed in depth in order to determine if eliminating right turns on red is the sustainable decision, or whether the issue is more complex.

### **Eliminate Parking on Side**

**Streets?** Management of the curbside, an important public asset, will become more important as the market diversifies. In the long term, as Transportation Network Companies and other alternatives to privately owned vehicles become more popular, consideration should be given to eliminating curbside parking on some side streets. The use of this parking will go down over time, the benefits of using this space to provide truly complete streets may outweigh



the daytime use of the space for parking. Dropoff and pickup areas would still need to be provided, but the space could largely be reallocated to bicycle and pedestrian circulation.



**Prepare for Battery Electric Buses?** While bus operations are largely the purview of the MBTA, a truly sustainable motorized transportation system will be electric. As battery technology improves, this conversion may be possible without any infrastructure changes. However, the Town should be prepared to support infrastructure improvements necessary to support the conversion of the MBTA's fleet to Battery Electric Buses. The Town should also develop a plan to get ahead of electric charging infrastructure on a

municipal level.

**Neighborhood Byways for Arlington Heights?** The transportation needs of Arlington Heights, while related to those of the rest of the Town, require specific treatments. The roadway network in the Heights offer the potential for a "Neighborhood Byway" system, where current existing streets are linked together through context-sensitive signage in a bicycle network. This is a cost-effective solution to providing bicycle accommodations in a more suburban part of Town.





## Staffing Plan and Project Approach

The Town has outlined ambitious and clear goals for this study. This project team can meet those goals and provide additional ideas for the Board of Selectmen and Town Meeting to consider. Based on the material in the Request for Proposals, we propose the following work plan.

### 1. DATA ANALYSIS

*Good policy making starts with good data. Our team will gather existing data, collect new data as needed, and present that data in easily understandable formats to provide a baseline for vision and goal creation.*

- a. The team will begin with an environmental scan of what relevant data sources exist. This scan would include looking at the following elements:
  - Physical nature of the transportation system, including right-of-way widths, existing use of those spaces, and quality of the existing spaces;
  - Volumes of system users and system data indicating origins and destinations;
  - Quality and quantity of rolling stock, including transit vehicles, taxi fleets, bicycle sharing systems, and other fleets;
  - Predicted transportation volumes from the Central Transportation Planning Staff's travel demand model and other relevant sources.
- b. Next, we would identify gaps in that data and propose cost-effective methodologies to collect that data. At this point, the team would hold a *meeting with the Sustainable Transportation Advisory Committee* and Town staff for input as to what data is missing and useful, as well as what benchmarks might be considered. For example, it is likely that bicycle volumes are not measured to the level needed for this study. Similarly, pedestrian crossing and volumes may not be currently available. An approach to this collection effort would be created in consultation with the client.
- c. Based on this data set, we would propose benchmarks to evaluate future investment in the system that can be used as a dashboard for decision-makers.
- d. All data would be presented in easy-to-understand formats. There would be an *initial public forum* if desired by the client, to present data and existing plans and get initial thoughts from the public.

#### *Staffing Plan (estimated hours)*

Task	Fort Hill	Levine Planning	Portland Design	TOTAL
Data Assessment	60	10		70
Data Collection	100	10		110
Benchmark Development	40	40		80
Presentation	10	20	40	70
TOTAL	210	80	40	330

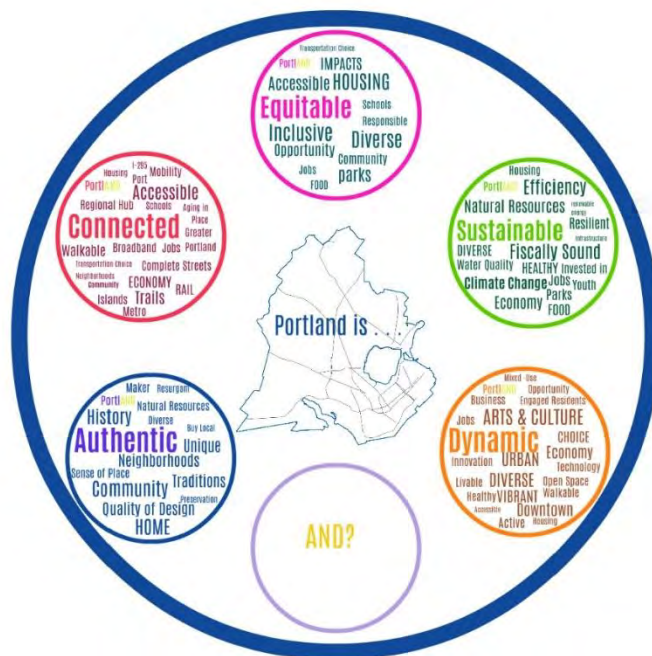
### 2. VISION DEVELOPMENT

*With a good data set, the team will begin to develop a vision that builds on existing policy goals and plans. The data and benchmarks should help guide us towards that vision.*

- a. The team will hold a second *meeting with the Sustainable Transportation Advisory Committee* and Town Staff to discuss possible visions for future transportation in Arlington. The meeting will begin with a values based visioning exercise that will develop a shared set of values on behalf of the advisory committee to serve as the foundation for the development of the vision. Fort Hill has

successfully used this visioning approach with the MIT Lincoln Labs as well as the for the Massachusetts Army National Guard in the development of their 30-year strategic capital master plan. This meeting will include a universe of options and potential tradeoffs among them and with other Town needs and goals.

- b. The team will develop a draft vision and set of data-based goals based on that meeting and present them to Town staff for feedback and refinement.
- c. The team will work with Town staff to develop one or more public outreach efforts. Rather than one public meeting, we suggest a package of materials that can be made easily accessible for a variety of public meetings, such as monthly meetings of Parent Teacher Organizations and neighborhood groups. Arlington staff, in coordination with the project team and other meeting organizers that are available, will provide these materials as well as a set methodology for reporting out the results of these meetings. By bringing the material to where the public is, rather than asking them to come to us, we will reach a wider range of residents, workers, and visitors to Arlington.
- d. The team will then coordinate with Town staff to hold a *second public forum* for those who are more comfortable in that structure, to outline what was heard to date and hear again from the public.
- e. A final proposed vision and set of data-based goals will be developed, refining the draft goals from before and bringing any new ideas forward. The team will hold a third *meeting with the Sustainable Transportation Advisory Committee* to confirm these products and get input as to priorities for implementation.



Structuring Existing Ideas can be Paired with Offering Room for New Ones, as we did by providing an “And?” option for the public in developing **Portland’s Plan 2030**, the Portland [ME] Comprehensive Plan (<https://PortlandsPlan.me>)



*Staffing Plan (estimated hours)*

Task	Fort Hill	Levine Planning	Portland Design	TOTAL
Development of Options	40	40		80
Draft Vision and Goals	15	20	5	40
Public Outreach	10	40		50
Public Forum	10	25	5	40
Final Vision and Goals	20	20	5	45
TOTAL	95	145	15	255

**3. IMPLEMENTATION STRATEGY**

*Once a vision has been created, and goals have been set, it's time to make it happen. Our team excels in making actionable plans that get results.*

- a. The team will develop a universe of implementation strategies, divided into short-term, medium-term, and long-term. Estimated budgets for short-term strategies will be developed. This list will also include possible pilot projects that can be implemented quickly and inexpensively to truth-test possible permanent strategies through use of tactical urbanism, paint, and other low-commitment approaches.
- b. The team will meet with Town staff to refine this list and create a proposed implementation strategy. The team will meet with representatives from the Town's finance team and other stakeholders as appropriate to help understand the impacts on the Town's CIP for short-term strategies.
- c. At a *fourth meeting of the Sustainable Transportation Advisory Committee*, the team will present these draft strategies and "quick win" projects for feedback.
- d. A final set of implementation strategies, including fiscal impacts and possible risks and tradeoffs, will be developed for Town staff review.

*Staffing Plan (estimated hours)*

Task	Fort Hill	Levine Planning	Portland Design	TOTAL
Development of Options	10	20		30
Fiscal Impact Analysis	5	30		35
Public Outreach	10	20		30
Final Implementation Plan		10	5	15
TOTAL	25	80	5	110

**4. FINAL PLAN PRODUCTION**

*The best plans are easy to read and understand. This team knows how important it is to develop a product that is easily accessible and serves as promotion for the vision, goals and implementation steps within.*

- a. The team will produce a stylesheet for a final report for Town staff review and approval
- b. Based on an approved style sheet, the team will produce an electronic version of a final report
- c. Once that electronic version is reviewed and approved by Town staff, a final version will be developed. A minimum of 2 fully produced color plans will be provided, as well as a high-quality master. Additional copies can be printed for additional cost as desired by the client.

## Staffing Plan (estimated hours)

Task	Fort Hill	Levine Planning	Portland Design	TOTAL
Stylesheet Development	5	6	15	26
Draft Plan Production			25	25
Final Plan Production	2	2	10	14
TOTAL	7	8	50	65



This team produced Portland's Plan 2030, which won the Maine Association of Planners' 2019 "Plan of the Year Award" for its content and readability

## Schedule

We presently estimate the following schedule, based on the approach to the scope of services we articulated above.

<u>Milestone</u>	<u>Duration</u>
<i>Data Analysis</i>	8 weeks
<i>Vision Development</i>	6 weeks
<i>Implementation Strategy</i>	6 weeks
<i>Final Report</i>	4 weeks
<i>Total Duration</i>	24 weeks

The Town has established a one-year period for the completion of the study. Our proposed schedule is well within the one year that the Town has established.

## Staff Resumes and Short Descriptions

A complete resume for each staff member is included in the following pages. This section will provide a brief overview of the key staff members.

### William F. Lyons Jr.

Bill Lyons will serve as the Principal-in-Charge of this assignment and will have all contractual authority. He will be responsible for assuring that the project manager has the resources necessary to complete the contract to the full satisfaction of the Town as our client. Bill will also serve in a technical capacity, providing key technical expertise in the areas of sustainable transportation systems, connected and autonomous vehicles, shared electric and autonomous mobility, and mobility as a service (MaaS). Bill is widely published in these areas and has been invited to give guest lectures on sustainability mobility at the University of Cambridge, Massachusetts Institute of Technology, and the University of Massachusetts Amherst.

In addition to his extensive transportation planning skills, Bill has extensive experience in facilitation and stakeholder engagement, to include running charrettes and public meetings/hearings. Bill's experience in these services includes partnering for the MIT Lincoln Lab microprocessor laboratory, partnering for the Massachusetts Army National Guard Strategic Capital Master Plan, stakeholder engagement for the disposition of the Volpe Center, stakeholder engagement for the the Green Line Extension Project, and many more engagements.

Bill completed a Master of Sustainability leadership, including a dissertation on the *Nexus Between Sustainable Urban Design and Human Security*. Bill also completed a Master of Transportation and Urban Systems, with a dissertation on *Sustainable Mobility in the Developing World, a Case Study on Transmilenio BRT in Bogota, Colombia*. Bill has extensive global experience investigating BRT systems as a means of sustainable mobility, including investigating systems in Johannesburg, South Africa; Mexico City, Mexico; and Bogota, Colombia.

Bill is available 20 hours per week for this assignment.



### Academic Qualifications

- Bachelor of Science in Electrical Engineering, Norwich University
- Master of Sustainability Leadership, Judge Business School, University of Cambridge
- Master of Transportation and Urban Systems, North Dakota State University
- Juris Doctor, Suffolk University Law School.

### Summary of Professional Experience

- Traffic Engineer, Massachusetts Highway Department (now the Massachusetts Department of Transportation). 1992-1994
- Department Head and Senior Project Manager, Highway & Traffic Signal Design, Inc. 1994-1999
- Director of Traffic and Parking, City of Somerville, MA. 1999-2004
- President and Co-Founder, Traffic Solutions LLC. 2004-2009
- Founder, President, and Chief Executive Officer, Fort Hill Companies LLC. 2009-Present

### Faculty Appointments

- Adjunct Faculty, Wentworth Institute of Technology
- Adjunct Faculty, Norwich University
- Adjunct Faculty, Southern New Hampshire University
- Senior Fellow, Norwich University Center for Global Resilience and Security

### Professional Licenses and Certifications

- Licensed Professional Engineer, Traffic, MA
- Licensed Attorney/Member of the Massachusetts Bar
- American Institute of Certified Planners (AICP) Certified Transportation Planner (CTP)
- Transportation Professional Certification Board, Certified Professional Transportation Planner (PTP)
- Institute for Sustainable Infrastructure, Envision Sustainability Professional (ENV SP)

### Professional Affiliations

- Past Chair, Infrastructure Council, Urban Land Institute (ULI) Boston Council.
- Current Member, National Public Development and Infrastructure Council, ULI
- Current Member, National Driverless Cars Working Group, ULI
- Past Chair, Government Affairs and Professional Practice Committee, Boston Society of Civil Engineers
- Past President, New England Section, Institute of Transportation Engineers
- Member, Boston BRT Committee
- Member, Transportation Steering Committee, Boston Green Ribbon Commission

### Jeff Levine

Jeff Levine, AICP, of Levine Planning Strategies LLC will serve as the Project Manager and will be responsible for the development and delivery of the Sustainable Transportation Plan. Jeff will be responsible for day-to-day interactions with the Town and for managing the resources necessary to complete the plan to the Town's satisfaction.

Jeff is available 30 hours per week for this assignment.

#### Academic Qualifications

- Bachelor of Arts in Public Policy, Wesleyan University
- Master of Planning (Economic Development), Humphrey Institute of Public Affairs, University of Minnesota.

#### Summary of Professional Experience

- Regional Transportation Planner, Cape Cod Commission. 1996-1998
- Director in the Office of Housing & Community Development for the City of Somerville. 1998-2004
- Director of Planning & Community Development for the Town of Brookline. 2004-2012
- Director of Planning & Urban Development for the City of Portland, ME. 2012-2019
- Faculty, Department of Urban Studies and Planning, Massachusetts Institute of Technology (MIT). 2019-Present
- Levine Planning Strategies LLC, 2019-Present

#### Academic Appointments

- Faculty, Massachusetts Institute of Technology
- Adjunct Faculty, University of Southern Maine. Muskie School of Public Service Advisory Board.
- Adjunct Faculty, Tufts University
- Adjunct Faculty, University of Massachusetts

#### Professional Licenses and Certifications

- Member, American Institute of Certified Planners (AICP)

#### Professional Affiliations

- Muskie School of Public Service Advisory Board, 2015-present.
- Lambda Alpha International Land Economics Society, 2009-present.
- METRO (Portland, ME) Board of Directors, 2014-2018, 2019-.
- PACTS (Portland, ME) Policy Committee, 2013-2015.
- Urban Ring Citizens Advisory Committee, 2002-2012.
- Somerville Redevelopment Authority, 2005-2012.
- Metropolitan Area Planning Council, 2005-2012; Executive Committee, 2011-2012.
- County Roads Regional Adjudicatory Board, 2007-2012.
- Metropolitan Highway System Advisory Board, 2008-2010.
- Boston Region Metropolitan Planning Organization, 2004-5.
- Regional Transportation Advisory Council, Boston MPO, 2001- ; Chair, 2004-2005.
- Chair, Inner Core Committee, Metropolitan Area Planning Council, 2002-6.
- Beyond Lechmere Citizens Advisory Committee, MBTA, 2004-2005.
- Board of Directors, Massachusetts Chapter-American Planning Association, 2000-2003.

## LK Weiss

LK Weiss is the Owner & Creative Director of Portland Design Company. LK received her Bachelor of Fine Arts from the Maine College of Art. LK will be responsible for preparing all of the graphics for the study and will play a key role in data visualization.

LK is available 15 hours per week for this assignment.



# WILLIAM F. LYONS JR., PE, PP, ESQ

143 Broad Street #3, Hudson, Massachusetts 01749

[William.f.lyons.jr@gmail.com](mailto:William.f.lyons.jr@gmail.com) • (978) 996-4252

<https://www.linkedin.com/in/william-lyons-abb1585/>

<https://forthillcos.wordpress.com/>

## EDUCATION

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JANUARY 2007	<b>Suffolk University Law School</b> <i>Juris Doctor, Environmental Law and Land Use Law</i> <i>Suffolk University Environmental Jurisprudence Award</i>
MAY 2022 (ANTICIPATED)	<b>University of Massachusetts – Amherst</b> <i>Doctor of Philosophy, Transportation Engineering</i>
JULY 2019	<b>University of Cambridge (UK)</b> <i>Master of Studies, Sustainability Leadership</i> Dissertation: “The Nexus Between Urban Design and Human Security”
AUGUST 2013	<b>North Dakota State University</b> <i>Master of Transportation and Urban Systems</i> Research Paper: “Sustainable Transport in the Developing World: A Case Study of Bogota’s Mobility Strategy and TransMilenio”
AUGUST 2013	<b>US Army War College</b> <i>Master of Strategic Studies</i> Program Research Paper: “A New Strategic Framework – Development as an Instrument of Power”
AUGUST 2012	<b>Upper Great Plains Transportation Institute</b> <i>Transportation Leadership Graduate Certificate</i>
MAY 1990	<b>Norwich University</b> <i>Bachelor of Science in Electrical Engineering</i>
AUGUST 2008	<b>Cochise College</b> <i>Associate of Applied Science, Intelligence Operations</i>

## EXPERIENCE

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2009 - PRESENT	<b>Fort Hill Companies LLC</b> <i>Founding Partner, President, &amp; Chief Executive Officer</i> Civil & Transportation Engineering, Planning, Real Estate Advisory, Stakeholder Engagement, P3s, Connected & Autonomous Vehicles
2014 - PRESENT	<b>SixTen Technologies LLC</b> <i>Founder/Owner</i> Transportation Technology Design & Development
2016 - 2018	<b>Burns &amp; Levinson LLP</b> <i>Of Counsel Attorney</i> Real Estate Law, Construction Law, Public Private Partnerships (P3)

## WILLIAM F. LYONS JR., PE, PP, ESQ

2007 - 2016	<b>Law Office of Wm F Lyons Jr.</b> <i>Attorney at Law</i> Real Estate Law, Land Use Law, General Practice
2004 - 2009	<b>Traffic Solutions LLC</b> <i>President</i> Transportation Policy, Planning, and Engineering
2007 - 2009	<b>Land Strategies Group LLC</b> <i>Director and General Counsel</i> Real Estate and Land Development Advisory Services
1999 - 2004	<b>City of Somerville, Massachusetts</b> <i>Director of Traffic &amp; Parking</i> Municipal Public Works, Municipal Transportation Engineering
1994 - 1999	<b>Highway &amp; Traffic Signal Design, Inc.</b> <i>Department Head &amp; Senior Project Manager</i> Transportation Planning, Traffic Engineering, Roadway Design
1992 - 1994	<b>Massachusetts Highway Department (now MassDOT)</b> <i>Civil Engineer I</i> Traffic Engineering, Civil Engineering, ITS Programs
1989 - PRESENT	<b>United States Army Reserve</b> <i>Colonel, US Army Corps of Engineers</i> Command at brigade, battalion, & company levels. Combat veteran. Bronze Star Medal. Emergency Preparedness Liaison Officer for FEMA. Graduate of Command & General Staff College and Joint Forces Staff College.

### ACADEMIC APPOINTMENTS & EXPERIENCE

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2019 - PRESENT	<b>Norwich University</b> <i>Senior Fellow</i> <i>Program: Center for Global Resilience &amp; Security</i> Engages in collaborative research activities in the fields of Environmental Security, Energy Resilience, and Resilient Infrastructure. Presents independent and collaborative work at Norwich University hosted or supported events. Mentors and/or serves as an external adviser to undergraduate students engaged in research related to the CGRS initiatives.
2019 - PRESENT	<b>University of Massachusetts – Amherst</b> <i>PhD Candidate and Dwight D. Eisenhower Fellow</i> <i>Program: Transportation Engineering</i> Conducts graduate level research in transportation related topics focused on social and economic impacts of new urban mobility, connected and autonomous vehicles, and ride sharing.

## WILLIAM F. LYONS JR., PE, PP, ESQ

2016 - PRESENT	<b>Wentworth Institute of Technology</b> <i>Adjunct Faculty/Lecturer</i> <i>Program:</i> Master of Science in Construction Management <i>Course:</i> Negotiation & Conflict Resolution Blended on-line and classroom delivery. Responsible for syllabus and content development; Administration of an LMS
2018 - PRESENT	<b>Southern New Hampshire University</b> <i>Adjunct Faculty/Instructor</i>  <i>Program:</i> Master of Science in Management (Construction Mgt) <i>Course:</i> Construction Law & Contracts On-Line Delivery using an LMS  <i>Program:</i> Master of Science in Organizational Leadership <i>Course:</i> Entrepreneurship and Small Business Management On-Line Delivery using an LMS
2008 - 2010	<b>US Army Command &amp; General Staff College</b> <i>Adjunct Faculty</i> <i>Program:</i> Command & General Staff Officers Course Grading and advising in the graduate, non-degree producing distance learning program.

### AWARDS

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2003	<b>Boston Society of Civil Engineers</b> <i>Bertram Berger Young Engineer of the Year Award</i>
2017	<b>Suffolk University Law School</b> <i>Jurisprudence Award in Environmental Law</i>
2014	<b>Boston Society of Civil Engineers</b> <i>President's Award</i>

### PROFESSIONAL LICENSES AND CERTIFICATIONS

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PROFESSIONAL ENGINEER	Massachusetts, California, New Hampshire, Rhode Island, New Jersey, Maine, Vermont, Connecticut, Florida
PROFESSIONAL PLANNER	New Jersey
LICENSED ATTORNEY	Massachusetts
REAL ESTATE BROKER	Massachusetts



## **WILLIAM F. LYONS JR., PE, PP, ESQ**

CERTIFICATIONS	American Institute of Certified Planners (AICP), Certified Transportation Planner (CTP) Transportation Professional Certification Board, Professional Traffic Operations Engineer (PTOE) Transportation Professional Certification Board, Professional Transportation Planner (PTP) Envision Sustainability Professional (ENV SP)
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### **PROFESSIONAL AFFILIATIONS AND SERVICE**

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2001-02	<b>Institute of Transportation Engineers</b>
2005	International Task Force on Ethics
1998-99	Northeast District Nominating Committee, Chair
2003	Northeast District Student Chapter Coordinator
1999-2003	New England Section, President
1999-2000	New England Section, Board of Directors
1997-1999	New England CHRONICLE, Editor
1992-1994	New England Section, Legislative Liaison
	New England Section, Young Professionals Group, Chair
	<b>Urban Land Institute</b>
2017-Present	National Public Development & Infrastructure Council
2017-Present	National Driverless Vehicles Working Group
2013-2016	ULI Boston Infrastructure Council, Chair
	<b>Boston Society of Civil Engineers</b>
2016-2016	Government Affairs & Professional Practice Committee, Chair
2014-Present	<b>Society of American Military Engineers</b>
	Joint Engineer Contingency Operations Committee
2000-Present	<b>American Planning Association</b>
2017-Present	<b>Engineers Without Borders</b>

### **CIVIC AND VOLUNTEER ACTIVITIES**

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2013-PRESENT	<b>Norwich University Alumni Association</b> Board of Directors, President (Current)
2017-PRESENT	<b>Camp Arrowhead Amputee Recreation Area, Inc.</b> Board of Directors
2013	<b>US International Trade Administration</b> Trade Mission to South India & Sri Lanka, Delegate
2013-2015	<b>Greater Boston Bus Rapid Transit Study</b>
2013-2014	<b>City of Boston Green Ribbon Committee</b> Transportation Steering Committee

## **WILLIAM F. LYONS JR., PE, PP, ESQ**

2009-2010	<b>Massachusetts Legislature, Joint Committee on Transportation</b> Boston Society of Civil Engineers Legislative Fellow
2006-2010	<b>Massachusetts Dept of Housing &amp; Community Development</b> Designer Selection Committee (Vice Chair, 2010)
	<b>Town of Natick, MA</b>
1993-1996	Planning Board, Elected Member
1993-1997	Town Meeting, Elected Member
1995-1996	Municipal Complex Advisory Committee
1995-1997	<b>William Rizzo Community Foundation</b> Board of Directors

### **PEER REVIEWED PUBLICATIONS**

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- “Sustainable Transport in the Developing World: Bogota’s Mobility Strategy and Lessons Learned for Sustainable Urban Mobility,” Proceedings of the International Conference on Sustainable Infrastructure, American Society of Civil Engineers, October 2017
- “A New Strategic Framework: Development as an Instrument of American Power,” Simmons Center for the Study of Interagency Coordination, January 2015.
- “Funding for Transit: Past, Present, and Future,” Journal of Planning & Environmental Law, American Planning Association, May 2013
- “Estimating Gaps for Pedestrian Traffic Signals,” Proceedings of the Annual Meeting of the Institute of Transportation Engineers, August 2006 (co-author)
- “Effectiveness of Strobes on Improving Violation Rates at Pedestrian Signals,” ITE Journal, Institute of Transportation Engineers, November 2005 (co-author)

### **ADDITIONAL PUBLICATIONS**

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- “Autonomous Vehicles: A Primer for the Civil Engineering Community,” Boston Society of Civil Engineers Section Newsletter, September 2017
- “Avoiding Tort and Criminal Liability for Older Drivers: A Social Imperative,” New England Chronicle, New England Institute of Transportation Engineers, March 2016
- “The Intersection of Roadway Design and Tort Liability,” Subrogator Magazine, July 2015 (co-author)
- “Facilities, Infrastructure and Theater Security Cooperation Planning,” The Military Engineer, July 2015 (co-author)
- “Utility Poles as a Roadside Hazard: The Intersection of Roadway Design and Tort Liability,” Claims Magazine, Property & Casualty 360, February 2015 (co-author)
- “Utility Poles as a Roadside Hazard: The Intersection of Roadway Design and Tort Liability,” New England Chronicle, New England Institute of Transportation Engineers, February 2015 (co-author)
- “Application of Electrical Circuit Theory to Traffic Calming Planning & Implementation,” New England Chronicle, New England Institute of Transportation Engineers, May 2014

## **WILLIAM F. LYONS JR., PE, PP, ESQ**

- 
- “A Transportation Option: Local Option Taxes. With New State Funds Unlikely, Cities Need to Act,” Commonwealth Magazine, March 24, 2014 (co-author)
  - “US Contractor Engineering Support to Contingency Operations: The Essential Role of US Design Firms,” The Army Engineer, March 1, 2014
  - “Funding for Transit: Past, Present, and Future. What it Means for the MBTA,” Boston Society of Civil Engineers, Section Newsletter, April 2013
  - “Fare Increases, Ridership, and Economic Development,” New England Chronicle, New England Institute of Transportation Engineers, May 2013
  - “Designer Selection Committee Supports Affordable Housing,” Boston Society of Civil Engineers, Section Newsletter, December 2008
  - “Designing Traffic Signals for Full Accessibility,” New England Chronicle, New England Institute of Transportation Engineers, August 1995 (co-author)
  - “The Application of Advanced Traffic Control Devices: Intelligent Transportation Systems for Suburban Communities,” IMSA Journal, International Municipal Signal Association, January 1996
  - “Parking Enforcement and Residential Permit Parking Programs: The Somerville Experience,” Parking Today, June 2004 (co-author)
  - “Security for the Built Environment,” The Military Engineer, Society of American Military Engineers, September 2004
  - “Transportation Systems Security: A New Imperative,” New England Chronicle, New England Institute of Transportation Engineers, September 2004
  - “Massachusetts DEP Clarifies Jurisdiction Under the Wetlands Protection Act,” The Green Gavel, Suffolk University Environmental Law Society, Spring 2005

### **PRESENTATIONS AND SPEAKING ENGAGEMENTS**

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- “Innovative Infrastructure Financing and Public Private Partnerships,” Boston Society of Civil Engineers, February 2018
- “Autonomous Vehicles and Their Impact on Transportation Finance and P3s,” Transportation Bond Buyers Conference, November 2017
- “Sustainable Transport in the Developing World: Bogota’s Mobility Strategy and Lessons Learned for Sustainable Urban Mobility,” International Conference on Sustainable Infrastructure, American Society of Civil Engineers, October 2017
- “Comprehensive Mobility Planning for Urban Residential Development,” Southern New England American Planning Association Conference, October 2017
- “Innovative Affordable Housing Production Using Public Assets,” Southern New England American Planning Association Conference, October 2017
- “Urban Development, Parking, and Mobility – The Portland Story,” Southern New England American Planning Association Conference, October 2017
- “Sustainable Mobility in the Digital Age,” Cambridge Institute for Sustainability Leadership, University of Cambridge, July 2017
- “Integrated Mobility Planning,” National Multifamily Housing Council, Board of Directors Meeting, May 2017
- “Sustainable Mobility in The Age of The Internet of Things,” Panelist, Institute of Transportation Engineers, Northeast District, May 2017



## **WILLIAM F. LYONS JR., PE, PP, ESQ**

- 
- “Public Private Partnerships - The Port of Miami Access Tunnel and P3 Developments.” Moderator of Joe Aiello Presentation, Boston Society of Civil Engineers, April 2017
  - “Boots to Business Reboot,” Panelist, Small Business Administration Workshop for Veteran Entrepreneurs, November 2016 “Utility Poles as a Roadside Hazard: The Intersection of Roadway Design and Tort Liability,” Panelist, National Association of Subrogation Professionals, October 2016
  - “Autonomous Vehicles & The Transportation Theory of Everything,” Panelist, Institute of Transportation Engineers, Northeast District, May 2016
  - “The Coming Revolution in Highway User Fees: New Technology and Pilot Programs for VMT,” Panelist, Institute of Transportation Engineers, Northeast District, May 2016
  - “Developing for a Driverless World,” Urban Land Institute Boston, Moderator, July 2016
  - “The Massachusetts Transportation Program - A Legislative Update,” moderator, Boston Society of Civil Engineers, March 2016
  - “Public Private Partnerships (P3): Round Table Discussion on the Funding Source to Rebuild America's Infrastructure,” Boston Society of Civil Engineers, 2016
  - Keynote Speaker, Engineering Convocation, David Crawford School of Engineering, Norwich University, 2012
  - “Legislative Perspectives on Transportation Funding”, Intelligent Transportation Society of America, Massachusetts Chapter, Annual Meeting, 2009
  - “Estimating Gaps for Pedestrian Traffic Signals,” International Annual Meeting of the Institute of Transportation Engineers, 2006
  - “Y2K Implications for Traffic Signal Operations,” Institute of Transportation Engineers (ITE), District #1 Annual Meeting, 1999
  - “Advanced Traffic Management Systems for Municipalities,” American Public Works Association (APWA), New England Chapter Annual Meeting, 1997
  - “Intelligent Transportation Systems in the Suburban Environment,” International Municipal Signal Association (IMSA), New England Section Annual Meeting, 1996

### **PRESS**

- 
- “Automotive Automation, Driverless Cars Will Radically Change Real Estate, Disruption is Coming to Commutes, Land Use and Urban Design,” Banker & Tradesman, February 2018
  - “Connected and Autonomous Vehicles,” Featured Guest, Civil Engineering Today, Boston News Network, November 2017
  - “Massachusetts Aging Infrastructure with Christine Hayes,” WERS 88.9 Emerson College Radio - You Are Here: Abigail Collin's State of The Union, February 17, 2013
  - “The Muddy River Restoration and Environmental Remediation Project,” Featured Guest, Civil Engineering Today, Boston News Network, July 2016

## WILLIAM F. LYONS JR., PE, PP, ESQ

### PUBLISHED POETRY

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- *Happiness Is...*, Poetry's Elite, International Library of Poetry, 2001
- *Warmth and Danger*, From Silver Fountains, International Library of Poetry, 2000

### BANKER & TRADESMAN – RECURRING OPINION EDITORIAL COLUMN

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- ACCESS FOR ALL: Replacing the Northern Avenue Bridge – A Transportation Project Whose Time Has Arrived, September 2018
- SHARING ECONOMY EXPANDS: Bikeshare System Recognizes Significant Growth - Bikes on the Path to Measurable Impact, March 2018
- RIDESHARING COMES OF AGE: Mobility Policy Needs to Move in the Right Direction – Dedicated Zones for Rideshare Services Justified
- ECONOMIC OPPORTUNITY: A Major Economic Disruption is on the Horizon - Mainstream Autonomous Vehicles Will Challenge All Aspects of Industry, February 2018
- RIDESHARING COMES OF AGE: Mobility Policy Needs to Move in the Right Direction - Dedicated Zones for Rideshare Services Justified, January 2018
- MAKING TRANSIT FAIR: Rethinking Mobility for The Entire Workforce, December 2017
- PARADIGM SHIFT: The Future of Mobility Is Sustainable - Autonomous Electric Cars Will Change Our Relationships with Travel, November 2017
- MAKING IT RIGHT: Volkswagen Funds to Be Used for Emissions Reduction - Massachusetts Should Apply Its Share to Convert or Replace Diesel Vehicles, November 2017
- THE AMAZON DERBY BEGINS: Announcement Feeds Boston's Obsession with Corporate Headquarters – Without Better Transportation Planning, City May Lag Behind, September 2017
- CHANGES IN MOBILITY ACCELERATE: The Coming Age of Mobility as a Service - The Death of The Internal Combustion Engine Is on The Horizon, August 2017
- A NEW PERSPECTIVE: Lessons Learned from European Travel - Investments in Infrastructure Dramatically Improve Quality of Life, July 2017
- BRING ON THE INNOVATION: Looking for Another Henry Ford - Transportation Industry Poised for Major Changes, June 2017
- MILLENNIALS DRIVE CHANGE: The Future of Urban Mobility - Shifting Gears in Automobile Ownership, May 2017
- DISRUPTION ERUPTION: New Technology in UK Holds Potential to Disrupt Car Market - Hydrogen-Fueled Car Will Be Offered on Subscription Basis, April 2017
- LESSONS NOT LEARNED: Privatization of Transport Has Led to Unregulated Chaos - Conditions Approach Tipping Point on Boston's Streets and Rails, April 2017

## **WILLIAM F. LYONS JR., PE, PP, ESQ**

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- FROM DRONES TO DIGITS: The Future of Mobility and Big Data - Information and The City of The Future, March 2017
- DIMMING PROSPECTS: Is Ridesharing Economically and Socially Sustainable? - Trouble Ahead for Ridesharing Firms as Self-Driving Cars Come Online, January 2017
- CHANGE IS ON ITS WAY: State Decides to Regulate Ride Share Companies - Fingerprinting Requirements Not Included in Last Year's Regs, But May Still Come to Pass, January 2017
- WHAT'S OLD IS NEW AGAIN: Public-Private Partnerships Are Back on The Agenda - Alternative Project Delivery Picks Up Speed, August 2016
- MAKE WAY FOR THE FUTURE: Transportation and Technology on A Collision Course -Autonomous Vehicles Generate Interest in Land Use, Public Safety, August 2017
- SIT DOWN AND BUCKLE IN: Amtrak Is Better Than Flying - Passenger Rail in The Northeast Corridor Is Exceptional, April 2016
- CREATING RIPPLES: Water Resources Legislation Takes One Step Closer to Law - Bill Would Allow Public-Private Partnerships to Address Underfunded Infrastructure, March 2016
- HOW MUCH FARE IS FAIR? Debate Over MBTA Fares Redux- Preserving Equity While Preserving the System, March 2016
- A NEW WAY FORWARD: Getting the Green Line Back on Track - Reimagining the Green Line Extension, January 2016
- ON THE FAST TRACK: Congress Moves Forward with Transportation Funding - Legislation Includes Significant Increase in Funding for MassDOT, December 2015
- THE END OF AN ERA: Riding Off into The Sunset - Davis Says Good Bye After More Than 20 Years with the MBTA, November 2015
- SAFETY BEFORE CONVENIENCE: Moving Forward with Hands-Free - Distracted Driving Hits a Bump in The Road, October 2015
- DRIVING INTO THE FUTURE: Autonomous Vehicles Are Here- The Transportation Theory of Everything, September 2015
- BOSTON PUBLIC MARKET: A New Hub of Urban Life - Transportation Benefits on the Menu, August 2015
- CHARTING THEIR OWN COURSE: Local Option Transportation Taxes Put Municipalities at the Wheel - Local Control Over Local Needs, July 2015
- REACHING FOR COMPROMISE ON THE RAILS: Equity Versus Financial Solvency - How Much Fare Is Fair? - Debate Over MBTA Fares Continues, June 2015
- FIXING THE MBTA. More Reform & More Revenue - A Transit Agency at a Crossroads, May 2015
- WALK THIS WAY: Urbanism Moves into High Gear - New Research Demonstrates Higher Values for Walkable Places, March 2015



## **WILLIAM F. LYONS JR., PE, PP, ESQ**

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- **A NEW APPROACH WANTED:** Dynamic Leader to Drive Change at The MBTA - Lack of Leadership Leads to Poor Performance, March 2015
- **WATER, WATER EVERYWHERE:** Climate Change & Infrastructure - Riding the Rising Tide with Resiliency, Considered Planning is Important but so is Action, January 2015
- **ELECTIONS OVER:** The Road to Reauthorization - Congress Must Start Down the Path to Action, December 2014
- **BACK TO SQUARE ONE:** After Repeal, a New Approach to Gas Tax - Funding for Transit Circles Back to the Legislature and a New Governor, November 2014
- **A CAUTIONARY TALE:** Once Upon A Time, The Olympics Came to Boston, How Infrastructure Drove the Train, October 2014
- **DRIVING QUESTIONS:** The Future of Federal Transportation Funding - While Congress Debates and Delays, Infrastructure Suffers, September 2014
- **A TAXING QUESTION:** Repeal of Indexed Gas Tax Would Have Far-Reaching Implications, July 2014
- **A MATTER OF FAIRNESS:** Boston's Forthcoming Mobility Action Plan Must Be Equitable, June 2014
- **ULI PERSPECTIVES:** If Mexico City Can Invest in Transportation, Why Can't We?, May 2014

**JEFFREY ROBERT LEVINE, AICP**

P.O. Box 7215

Portland, ME 04112-7215

617-817-0424

blumlevine@gmail.com

**PROFESSIONAL EXPERIENCE**

**MASSACHUSETTS INSTITUTE OF TECHNOLOGY      2019-**

***Faculty, Department of Urban Studies and Planning***

Teach courses in the Masters of City Planning curriculum. Provide student mentoring and advise. Conduct research on urban planning topics.

**LEVINE PLANNING STRATEGIES      2019-**

***Owner and Principal***

Operating boutique consulting firm in the areas of land use planning, real estate development, entitlement services, and demographic analysis.

**CITY OF PORTLAND, MAINE      2012 - 2019**

***Director of Planning and Urban Development***

Led a department of 25 staff in urban planning, community development, housing, preservation, inspections and other land use activities in a regional core city. Represent the City in state, regional, and private venues. Worked with the City Manager, Mayor and City Council to advance common core goals.

Accomplishments include:

- Leveraging City and Federal funds through grant writing and seeking in-kind assistance for planning projects. Grantors include the U.S. Environmental Protection agency and Portland (OR) State University. Partnership with the Portland Society for Architecture has resulted in significant leverage of City resources.
- Guided City through rezoning process to allow infill development in urban neighborhoods and proactive inclusionary zoning ordinance amendments to address workforce housing issues.
- Completion of new Comprehensive Plan for the City (<https://portlandplans.me>) and initiated City-wide land use code overhaul (<https://www.recodeportland.me>)
- Instilling an excitement about urban planning and community development in the Department, City government, and residents of Portland by providing new forms of outreach to the community and a sense of accessibility.

**TOWN OF BROOKLINE, MASSACHUSETTS      2004 - 2012**

***Director of Planning and Community Development (2005-2012)***

Oversaw Town's land use planning and development office in a community of 60,000 residents, including dense neighborhoods and commercial areas. Led planning team

in affordable housing, economic development, comprehensive planning, zoning, and historic preservation activities. Analyzed land use issues and present recommendations to the Town Boards/Commissions and the public. Represented the Town at state and regional activities. Managed \$1 million annual operating budget and a staff of 15 FTE. Maintained high level of communication with a demanding set of stakeholders, including neighborhood groups, Town Boards/Commissions, Town Meeting, the Board of Selectmen and the public.

Accomplishments included:

- Guidance of the \$32 million 40B adaptive reuse project at the former Saint Aidan's church into a 59-unit mixed income development with significant preservation of historic structures and open space.
- Working with commercial and residential developers on several significant new developments valued at over \$250 million.
- Working with selected developer for former Town-owned reservoir site to develop mixed income housing, including financing and marketing of lots.
- Designing and financing approximately \$4 million in public improvements in the Village Square/Gateway East area.
- Completion of neighborhood plan for the Coolidge Corner district of Town, a dense, mixed-use, transit oriented regional center.
- Restructuring of staffing in order to better serve the Town and the public.
- Significant zoning amendments to protect neighborhoods from inappropriate demolition of historic homes.
- Preparing for the launch of Hubway bicycle sharing in Brookline, including fundraising, coalition building, & development of regional partnerships.

## **TOWN OF BROOKLINE, MASSACHUSETTS**

### ***Assistant Director, Planning & Community Development (2004-2005)***

Assisted Planning & Community Development Director in day-to-day operations of the Department. Staffed several Boards, Commissions, and citizen advisory committees. Accomplishments included:

- Managing completion of the **Brookline Comprehensive Plan: 2005-2015**, winner of an award from the Massachusetts Chapter of the APA.
- Completing the Town's Five Year Consolidated Plan.

## **CITY OF SOMERVILLE, MASSACHUSETTS**

**1998 - 2004**

### ***Director of Transportation and Long-Range Planning (2000-2004)***

Responsible for a division of the City's Office of Housing and Community Development that focused on land use transformations in formerly industrial areas. Completed overall reuse plan for the 145-acre Assembly Square district that began the redevelopment process of the district into a \$30 million mixed-use, transit-oriented development. Represented the Mayor at regional organizations and before citizen groups. Managed disposition of a 9.1-acre site owned by the Somerville Redevelopment Authority, including development of a Request for Proposals and



completion of a Land Disposition Agreement.

***Land Use Planning Manager (1998-2000)***

Managed zoning code review and planning operations. Worked with developers on site plan review of their proposals to develop improved projects. Represented the City in public meetings on issues of planning and development.

**CAPE COD COMMISSION**

**1996 - 1998**

***Regional/Transportation Planner***

Performed a variety of planning and regulatory studies and activities for a regional land use planning and regulatory agency.

**OTHER ACADEMIC EXPERIENCE**

**UNIVERSITY OF SOUTHERN MAINE**

**2015-**

Teach Transportation Planning in summer sessions. Serve on the Muskie School of Public Service Advisory Board.

**TUFTS UNIVERSITY**

**2010-2013**

Taught graduate-level Local Government Finance in summer sessions, 2011-3. Visiting lecturer in various UEP courses. Taught graduate level course in Tools and Techniques of Regional Planning.

**UNIVERSITY OF MASSACHUSETTS**

**2002 - 2004**

Taught graduate-level core in Quantitative Methods in Planning in the Department of Landscape Architecture and Regional Planning, receiving highly positive evaluations.

**EDUCATION**

**University of Minnesota (Humphrey Institute of Public Affairs)**

Masters of Planning in Economic Development, 1995.

Awarded Hubert H. Humphrey Scholarship to study public affairs

**Wesleyan University**

Bachelor of Arts in Public Policy with Departmental Honors, 1991

Washington Semester in Public Policy at The American University

**MIT Center for Real Estate Professional Development Courses**

**SELECTED PUBLICATIONS AND PRESENTATIONS**

Training modules in "Leadership in Planning," "Internal Management," and "External Management" for Planetizen Courses, Los Angeles, CA, 2017.

"Promoting 21st Century Manufacturing," presented at the *2017 EPA Brownfields Training Conference*, Pittsburgh, PA.

"Urban Development, Parking and Mobility: The Portland Story," presented at the *2017*

*National Planning Conference*, New York, NY.

Faculty, *Planning Leadership Institute*, American Planning Association, Seattle, WA and Phoenix, AZ, 2015-2016.

"Brookline as a Streetcar Suburb," mobile workshop as part of the *2011 National Planning Conference*, Boston, MA.

"Where is Research Informing Sustainability Planning?" presented at the *2011 National Planning Conference*, Boston, MA.

"Planning Directors in the Hot Seat!" presented at the *2011 National Planning Conference*, Boston, MA.

"Brookline—The Quintessential Streetcar Suburb," mobile workshop with Michael Dukakis as part of the *2009 RailVolution!* Conference, Boston, MA.

"Encouraging Affordable Housing that Fits," presented at the *2008 Southern New England Planning Conference*, Providence, RI.

Transportation and Public Participation Chapters in Preserving and Enhancing Communities, Elisabeth Hamin, Priscilla Geigis and Linda Silka (eds.), 2007.

*Planning without a Comprehensive Plan*, Planning Commissioners Journal, Fall 2002.

"Community Preservation" is Not Taking Hold in Poorer Communities, New England Planning, January 2002.

## **PROFESSIONAL ACTIVITIES, AWARDS AND MEMBERSHIPS**

Maine Association of Planners "Plan of the Year" Award for *Portland's Plan 2030*, 2019.

Principal Information Officer, Northern New England Chapter, American Planning Association, 2019-present

Muskie School of Public Service Advisory Board, 2015-present.

Lambda Alpha International Land Economics Society, 2009-present.

METRO (Portland, ME) Board of Directors, 2014-2018, 2019-.

Breakwater School Board of Trustees, 2013-2016.

PACTS (Portland, ME) Policy Committee, 2013-2015.

Urban Ring Citizens Advisory Committee, 2002-2012.

Somerville Redevelopment Authority, 2005-2012.

Metropolitan Area Planning Council, 2005-2012; Executive Committee, 2011-2012.

County Roads Regional Adjudicatory Board, 2007-2012.

Member, New Building Committee, Agassiz Cooperative Preschool, 2010-2012.

Somerville Charter Advisory Committee, 2008-2009.

Metropolitan Highway System Advisory Board, 2008-2010.

Organizer and Presenter, *Encouraging Affordable Housing that Fits*, Southern New

## **JEFFREY ROBERT LEVINE, AICP - PAGE 5**

England American Planning Association Annual Conference, 2008.

Honorable Mention for the *Brookline Comprehensive Plan 2005-2015*, Massachusetts Chapter-American Planning Association Annual Awards, 2006.

Boston Region Metropolitan Planning Organization, 2004-5.

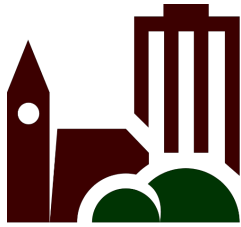
Regional Transportation Advisory Council, Boston MPO, 2001- ; Chair, 2004-2005.

Chair, Inner Core Committee, Metropolitan Area Planning Council, 2002-6.

Beyond Lechmere Citizens Advisory Committee, MBTA, 2004-2005.

Board of Directors, Massachusetts Chapter-American Planning Association, 2000-2003.





# LEVINE PLANNING STRATEGIES

Tools for Building Communities

P.O. Box 7215  
Portland, ME 04112-7215  
617-817-0424

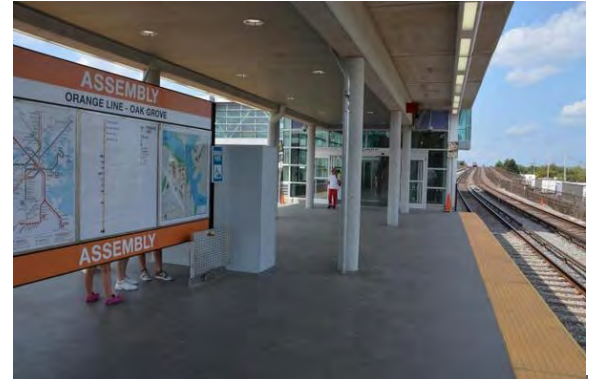
Levine Planning Strategies, LLC, is a small, New England-based firm committed to building communities by using data and effective planning tools. So often, planning processes are seen as battles. Instead, we see them as **conversations**, with a goal of coming up with **solutions**. We focus on housing and transportation planning and how they relate to sustainable land use.

Whether helping a municipal staff on their land use code, or helping a community develop realistic and dynamic policies and plans, or developing tools to leverage land use changes into multimodal transportation improvements, we see the value of planning for developers, and the value of developments to implement plans.

Past transportation projects that we have been involved in include:

- The initial launch of Hubway bikeshare in Brookline;
- Planning for the Assembly MBTA station in Somerville;
- Planning for the Green Line extension in Somerville;
- Obtaining federal funding for transportation projects via the Transportation Improvement Program process; and
- Planning for integration of transit and land use in Portland [ME] through creation of a Downtown Transit Oriented Development Tax Increment Finance zone and other tools.

As a small, local firm, we care deeply about client satisfaction. We want to make sure our work is useful for municipalities, as we know that their staff does the hard work of taking plans and studies and making them happen. Please feel free to reach out if you have any questions or want further information from us!



<https://LevinePlans.com>

## References

In accordance with the requirements of the RFP, we are providing the Town with references for past work.

### References for Fort Hill Companies LLC

	Reference	Project Descriptions
1	Milagros Puello City Engineer City of Lawrence 200 Common St, Lawrence, MA 01840 978-620-3350 <a href="mailto:MPuello@cityoflawrence.com">MPuello@cityoflawrence.com</a>	Project: Citywide Traffic Engineering Services Description: Provide on-call transportation planning and traffic engineering services Project Cost: \$150,000 Year: 2018-Present
2	Charles Pappalardo Vice President, Real Estate Vertex Pharmaceuticals, Inc. 50 Northern Avenue, Boston, MA 02210 617-961-7543 <a href="mailto:Charles_Pappalardo@vrtx.com">Charles_Pappalardo@vrtx.com</a>	Project: Seaport Mobility Initiative Description: Developed an action plan from the South Boston Seaport Sustainable Mobility Plan with discrete initiatives to be undertaken by corporate members. Project Cost: \$20,000 Year: 2016-Present
3	Michael Kineavy Chief Operating Officer Cronin Group LLC 250 Northern Avenue, Boston, MA 02210 617-737-2366 <a href="mailto:MKineavy@croningroupllc.com">MKineavy@croningroupllc.com</a>	Project: St. Regis Residences – Boston Seaport Description: Preparation of traffic impact and access studies for approval by BPDA pursuant to Article 80. Design of various transportation and site civil infrastructure, including widened sidewalks, bike lanes, and geofenced TNC drop off zones. Project Cost: \$49,365 Year: 2015-Present
4	John Sullivan Executive Vice President Cabot, Cabot, & Forbes 185 Dartmouth Street, Boston, MA 02116 617-603-4000 <a href="mailto:JSullivan@ccfne.com">JSullivan@ccfne.com</a>	Project: The Overlook at St. Gabriel's – Brighton Description: Provide strategic mobility advisory services to develop create approaches to reducing required parking as well as dependency on automobile transportation. Project Cost: \$10,000 Year: 2017
5	Helen Donaldson Director of Special Projects City of Portland Planning & Urban Development Department 389 Congress Street, 4th Floor, Portland, ME 04101 207-874-8723 <a href="mailto:hcd@portlandmaine.gov">hcd@portlandmaine.gov</a>	Project: City of Portland – Parking Study for the Eastern Waterfront and the Old Port Description: Fort Hill prepared an extensive parking study, including an inventory of all on and off-street parking, current and projected parking demand, and innovative strategies to make transportation and the parking system more sustainable over time. Project Cost: \$40,000 Year: 2017

### References for Levine Planning Strategies LLC

1. Kevin Donoghue Former City Councilor (District 1) City of Portland <a href="mailto:kjdonoghue@gmail.com">kjdonoghue@gmail.com</a> 207-409-2807	2. Sean Dundon Chair, Portland Planning Board City of Portland <a href="mailto:Sean.Dundon@vetrofibermap.com">Sean.Dundon@vetrofibermap.com</a> 207-415-8609	3. Robert L. Allen, Jr. Former Chair, Brookline Board of Selectmen <a href="mailto:ballen@boballenlaw.com">ballen@boballenlaw.com</a> 617-383-6000
--	--	--

## Analysis of Evaluation Criteria

To assist the selection committee, we have conducted an analysis of our proposal in consideration of the published selection criteria.

1. **Staffing Plan and Methodology**, including the professional qualifications of all project personnel with particular attention to training, educational background, professional certification or registration, and professional experience. Demonstrated expertise and experience of the Principal-in-Charge, Project Manager, and other key personnel, and any sub-consultants to be assigned to the Project, including professional registration of the sub-consultants and their qualifications.

**Fort Hill Proposal is Highly Advantageous.** Our submission proposes a detailed, logical, creative, collaborative and highly efficient scheme for producing a complete project that addresses all Goals and Priorities of this project and meets all the minimum applicant qualifications detailed in Section VI, "Consultant Qualifications."

- Fort Hill has more than ten (10) years of experience in transportation planning and engineering and community engagement on projects of similar size and scope, with a particular emphasis on walking, bicycling, and public transportation.
  - The principal and the project manager to be assigned to this project are available for meetings with the Town on days or evenings, as required.
  - Fort Hill has previous experience in similar projects, including completion of more than five (5) similar projects within the last five (5) years.
  - Fort Hill, the principal, and the project manager each have proven experience in the public and private sector and in working with federal, state and municipal agencies, and neighborhood and business organizations.
  - Fort Hill and both key personnel have sufficient availability to immediately initiate work and to follow through with the project in a timely and professional manner. The firm and all team members are capable of devoting a significant amount of time to this project in order to complete the work within the schedule outlined in this RFP.
  - Fort Hill and both the principal and project manager have extensive experience and strong skills in facilitation of large and small public meetings and managing the process of collaborative public participation.
2. **Depth of experience** with similar projects in sustainable transportation planning and engineering and community engagement, prior experience with community-wide transportation plans, and understanding of innovative transportation technologies.

**Fort Hill Proposal is Highly Advantageous.** Fort Hill has more than ten (10) years of experience consulting with public and private entities and the successful completion of five (5) similar transportation-oriented projects within the last five (5) years.

3. **Responsiveness of proposal**, including a demonstrated understanding of all project components, creativity in addressing emerging transportation topics, and public outreach needs.

**Fort Hill Proposal is Highly Advantageous.** Our proposal contains a clear, creative, and comprehensive plan that addresses all project Goals and Priorities as stated in the RFP.

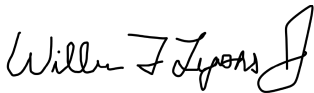


4. **Strength and credibility of client references.** The Consultant shall demonstrate prior client satisfaction with working relationship, project management capabilities, meeting project budget and schedule, and technical expertise in developing similar projects. References should aim to include clients who have worked with the designated Principal and/or project manager.

**Fort Hill Proposal is Highly Advantageous.** More than three clients consider our services satisfactory or better. Projects were completed within budget and on schedule with minimal, insignificant delays.

**CERTIFICATE OF NON-COLLUSION FORM**  
**TOWN OF ARLINGTON**  
**SUSTAINABLE TRANSPORTATION PLAN**

The undersigned certifies under penalties of perjury that this bid or proposal has been made and submitted in good faith and without collusion or fraud with any other person. As used in this certification the word "person" shall mean any natural person, business, partnership, corporation, union, committee, club, or other organization, entity, or group of individuals.



\_\_\_\_\_  
Signature of Individual Submitting Bid or Proposal

William F. Lyons Jr.

\_\_\_\_\_  
Name of Individual Submitting Bid or Proposal

Fort Hill Companies LLC

\_\_\_\_\_  
Name of Business

November 5, 2019

\_\_\_\_\_  
Date

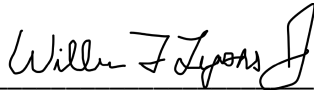
BY STATE LAW THIS NON-COLLUSION FORM MUST BE SIGNED AND SUBMITTED WITH THE BID OR PROPOSAL.

**CERTIFICATE OF TAX COMPLIANCE FORM**  
**TOWN OF ARLINGTON**  
**SUSTAINABLE TRANSPORTATION PLAN**

Pursuant to MGL Chapter 62C, Section 49A, I certify under the penalties of perjury that I have complied with all laws of the Commonwealth of Massachusetts relating to taxes, reporting of employees and contractors, and withholding and remitting child support.

26-3696176

\_\_\_\_\_  
Social Security Number or  
Federal Identification Number



\_\_\_\_\_  
Signature and Title of Individual or  
Responsible Corporate Officer

BY STATE LAW THIS CERTIFICATE OF TAX COMPLIANCE FORM MUST BE SIGNED AND SUBMITTED WITH THE BID OR PROPOSAL.





# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

09/30/2019

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

**IMPORTANT:** If the certificate holder is an **ADDITIONAL INSURED**, the policy(ies) must have **ADDITIONAL INSURED** provisions or be endorsed. If **SUBROGATION IS WAIVED**, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

<b>PRODUCER</b> Burgin, Platner and Company LLC 14 Franklin St.  Quincy MA 02169		<b>CONTACT NAME:</b> Karyn Stauss, CISR <b>PHONE (A/C, No, Ext):</b> (617) 472-3000 <b>E-MAIL ADDRESS:</b> ks@bphins.com <b>FAX (A/C, No):</b> (617) 472-7248	
		<b>INSURER(S) AFFORDING COVERAGE</b>	
		<b>INSURER A:</b> Massachusetts Bay Insurance Co	
		<b>INSURER B:</b> Lloyds	
		<b>INSURER C:</b>	
		<b>INSURER D:</b>	
		<b>INSURER E:</b>	
		<b>INSURER F:</b>	

**COVERAGES****CERTIFICATE NUMBER:** 2019 Master 9/30**REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> <b>COMMERCIAL GENERAL LIABILITY</b> <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR  GEN'L AGGREGATE LIMIT APPLIES PER: <input checked="" type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC OTHER:	Y		OBN9261806	08/25/2019	08/25/2020	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 300,000 MED EXP (Any one person) \$ 10,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000
A	<b>AUTOMOBILE LIABILITY</b> <input type="checkbox"/> ANY AUTO <input type="checkbox"/> OWNED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS ONLY <input checked="" type="checkbox"/> NON-OWNED AUTOS ONLY	Y		OBN9261806	08/25/2019	08/25/2020	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
A	<input checked="" type="checkbox"/> <b>UMBRELLA LIAB</b> <input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> <b>EXCESS LIAB</b> <input type="checkbox"/> CLAIMS-MADE DED RETENTION \$			OBN9261806	08/25/2019	08/25/2020	EACH OCCURRENCE \$ 1,000,000 AGGREGATE \$ 1,000,000
A	<b>WORKERS COMPENSATION AND EMPLOYERS' LIABILITY</b> ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N N	N/A	WDN9294510	10/06/2019	10/06/2020	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTH-ER E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000
B	Professional Liability			ANE1293653	08/29/2019	08/29/2020	ded \$5,000 \$1,000,000

**DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)**

10006-CH2M Hill Inc and Massachusetts Bay Transportation Authority (MBTA) are Additional Insureds per required written contract for General, Auto Liabilities. General Liability coverage is Primary and Non-Contributory. Waiver of Subrogation also applies per required written contract for same policies to include Workers' Compensation. Should any of the above policies be cancelled before the expiration date thereof, the issuing company will endeavor to mail 30 days written notice to the certificate holder named, but failure to do so shall impose no obligation or liability of any kind upon the insurer, its agents or representatives.

**CERTIFICATE HOLDER****CANCELLATION**

10006-CH2M Hill Inc. c/o CertFocus PO Box 140528  Kansas City MO 64114	<b>SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.</b>  <b>AUTHORIZED REPRESENTATIVE</b>  B. P. Thompson
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PORT  
LAND  
DESIGN Co.

DPCD Arlington, MA  
RFP for Graphic Design

Submission by Portland Design Co as part of the team  
submitting under Levine Planning Strategies  
October 28, 2019

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Table of Contents

03	Letter of Transmittal & Key Personnel
04	Portland Design Co Overview, Credentials, and Awards
05	Qualifications
06	Reviews/References
07	Summary of Demonstrated Experience
13	Client Base
14	Proposal/Pricing



## Letter of Transmittal and Key Personnel

Portland Design Co is submitting an à la carte proposal to assist Levine Planning Strategies with graphic design components of Arlington's DPCD Sustainable Transportation Plan RFP # 19-50.

Design assistance will focus on information design including, but not limited to: charts, graphs, info graphics, and information organization and visuals.

### Key Personnel:

LK Weiss, Owner & Creative Director | Maine College of Art Alumni

Abby Towne, Senior Designer | Maine College of Art Alumni

## Portland Design Co Overview, Credentials, and Awards

Portland Design Co is a small woman-owned and run studio nestled in downtown Portland's Arts District in the State Theater Building. Portland Design Co is a proud advocate of independent design(ers). Here, we celebrate our small, intentional team bringing big results to our clients through a well-rounded vision and approach. We believe *the best design is less design*, and focus on simplicity, function, and reason.

Portland Design Co was founded by LK Weiss, a Portland native, in 2010 during her studies at Maine College of Art, which resulted in her graduation with honors in 2011 with a BFA in graphic design. In 2018, LK partnered with Abby Towne, a Kennebunk native and MECA graduate, to strengthen Portland Design Co's fast moving, high quality agency-like momentum with a boutique and personal feel.

Together, our experience consists of a diverse range of clients from small local businesses to national and corporate companies, as well as government and nonprofit sectors. Work includes branding and identity design, websites, annual reports, icons and infographics, marketing materials such as brochures and posters, corporate design such as benefits packages, employee informational and onboarding packets, educational collateral, signage, and apparel and product design.

In 2017, LK joined the creative committee with Maine Ad + Design (formerly Maine Ad Club, founded in 1923) to lead their rebranding initiative which launched in August 2018. LK continues to mentor high school students and newcomers to the U.S. who are interested in the design industry.

Portland Design Co is honored to have received the following awards for excellence in design:

**Plan of the Year**, Maine Association of Planners, 2019

**Bronze**, Broderson Award, Annual Reports, Brochures and Corporate Collateral, 2019

**Silver**, Broderson Award, Illustration, 2019

**Gold**, Broderson Award, Corporate or Brand Identity, 2019

**Golden Arrow Award**, Maine Public Relations Council, 2018

**Bronze**, Broderson Award, Cumberland Award, 2017

**Gold**, Broderson Award, Logos & Marks, 2017

## Qualifications

Notable projects relating to the needs of the town of Arlington include, but are not limited to:

### City of Portland, Maine

- A 350-page Comprehensive Plan for the City of Portland's Urban Planning and Development Department and mini-site for department projects
- Light pole banners
- Bikeway signage
- City Employee Health & Fitness apparel
- Portland Opportunity Crew logo and signage
- Banners, brochures, and postcards for the Sustainability Department
- One Climate Future branding (collaborative initiative between Portland and South Portland)
- Trash bags & trash bag inserts
- Public WiFi signage
- The Office of Economic Opportunity Strategic Plan and associated website

### City of South Portland, Maine

- One Climate Future event posters
- Initiative posters

### Town of Castine, Maine

- Branding



“I’ve worked with Portland Design Co in several capacities, most recently to help us design our One Climate Future branding. LK Weiss is professional, insightful, great at turning ideas into polished styles, and extremely tuned in to the character of Portland and South Portland.”

**Julie Rosenbach**

*Sustainability Director, City of South Portland*

“Portland Design Co has done excellent work for the City of Portland, including design of the City’s comprehensive plan, website development for special projects, and more. Collaborative, creative, and responsive, LK and her team have added tremendous value to large and small City initiatives since 2015.”

**Christine Grimando**

*City Planning Director, City of Portland Planning & Urban Development Department*

“LK and her team are amazing to work with and know exactly what you need even if you can’t come up with the right words to express it. I’ve been fortunate to have worked with her and her team on several projects now with the City of Portland, and each time we’ve been impressed with the results. She’s more than willing to work with you to tweak any concepts to get them just where you want them. And on top of that, she’s quick to respond when you need something in a pinch.”

**Jessica Grondin**

*Director of Communications, City of Portland*

“Working with LK is straight forward, professional, stress free, and amazing. She has all the time honored traditions mixed with the hip and happening style of today. Never any ego or drama just pure, captivating, delivery of products that exceeds all expectations. If you want the best, you’ll want Portland Design Co!”

**Barbara Whitten**

*PR Specialist, Town of Castine, Maine*

## Summary of Demonstrated Experience

### Sample 1

**Client:** City of Portland

**Project:** Comprehensive  
Plan and Website

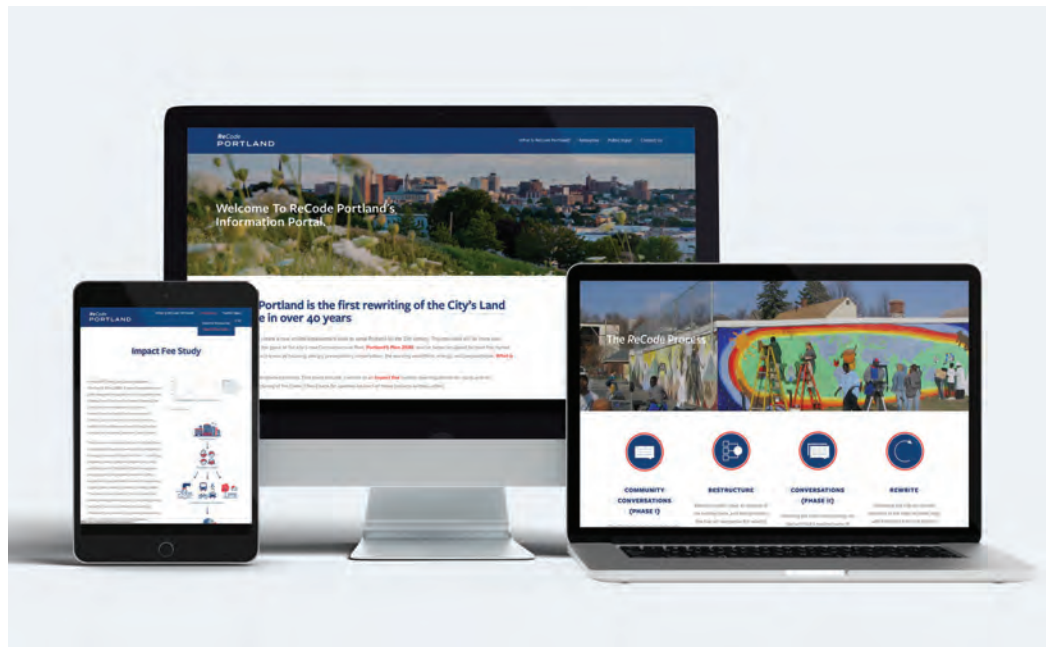
#### **Deliverables:**

350 page plan plus additional  
summary book. Project included  
infographics, charts and tables.

#### **Winner of:**

Bronze, Broderson Award, Annual  
Reports, Brochures and Corporate  
Collateral, 2019

Plan of the Year, Maine Association  
of Planners, 2019



# PORTLAND

DESIGN CO.

LK WEISS | 207.318.0243 | lk@portlanddesignco.com | portlanddesignco.com

## Sample 2

**Client:** Cities  
of Portland &  
South Portland

**Project:** Logo Design

**Deliverables:**

Primary logo, posters.

**Background:**

The cities of Portland and South Portland are embarking on an 18-month planning process called One Climate Future to address the impacts of climate change and actively engage the communities of both cities to identify and prioritize environmental goals.

We were tasked with creating a logo that focuses on the four key opportunities to reduce each city's environmental impact and build climate resilience:

- Buildings & Energy Use
- Transportation & Land Use
- Waste Reduction
- Climate Preparedness & Resilience

The goals and outcomes of this initiative seek to promote economic prosperity, social equity, improved quality of life and encourage the shift to renewable energy.



**PORT  
LAND**

DESIGN CO.



## Sample 3

**Client:** Aquaculture Research Institute, University of Maine, Orono

**Project:** Branding

### Deliverables:

Logo, icons, brochure.

### Background:

This program supports revolutionary breakthroughs to advance aquaculture development in Maine, as part of the University of Southern Maine's network. The ARI brand needed to adhere to UMaine's brand standards, including fonts, colors, and general voice but was able to take on its own fun and interesting personality.



**Aquaculture**  
Research Institute



**PORTLAND**

DESIGN CO.

LK WEISS | 207.318.0243 | lk@portlanddesignco.com | portlanddesignco.com

Sample 4

Client: Various

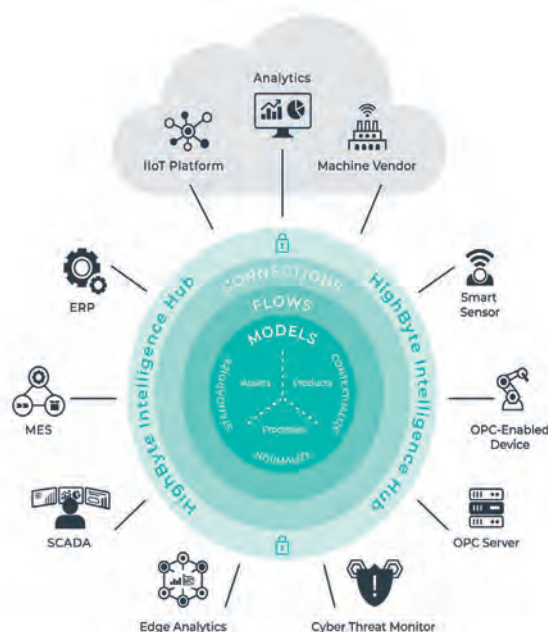
Project: Infographics

#### Deliverables:

Fact sheets, informational charts, social media content.

#### Background:

Infographics for various client needs, including L.L. Bean, HighByte, and Lucky's Market, (a client of Fact & Fiction.)



**PORTLAND**

DESIGN CO.

LK WEISS | 207.318.0243 | lk@portlanddesignco.com | portlanddesignco.com

## Sample 4, Continued

Client: Various

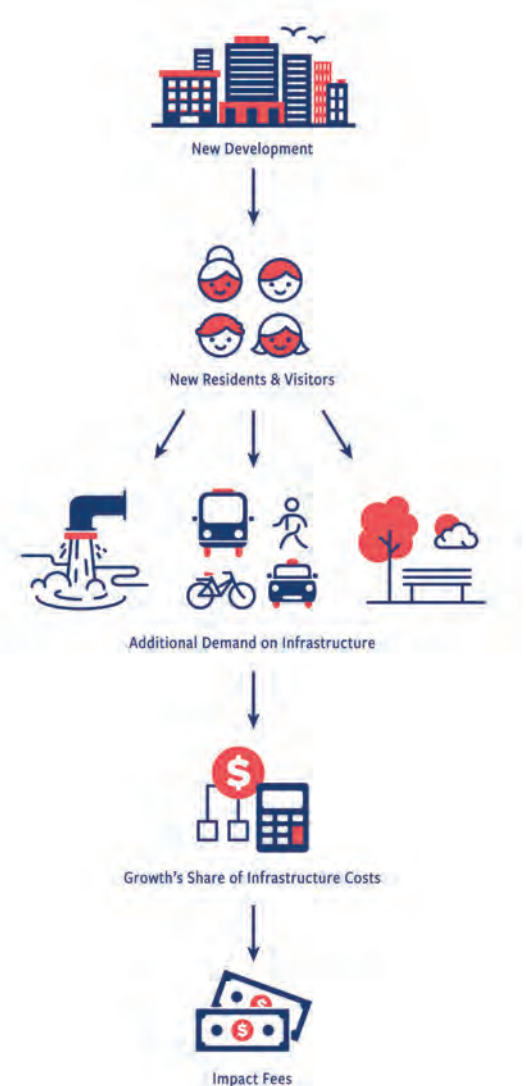
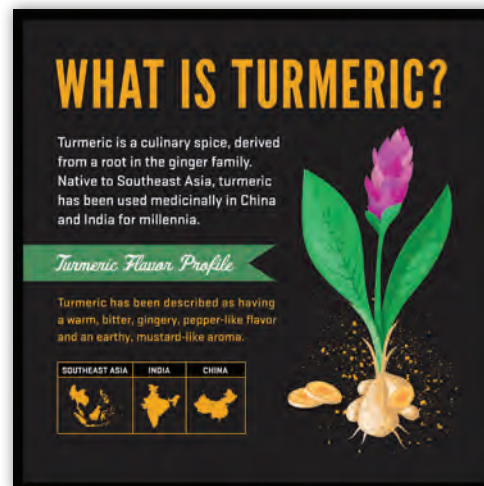
Project: Infographics

### Deliverables:

Social media content, maps, statistics, and flow charts.

### Background:

Infographics for various client needs, including Lucky's Market, (a client of Fact & Fiction), Maine Community College System, and the City of Portland.



**PORTLAND**

DESIGN CO.



Sample 5

Client: Various

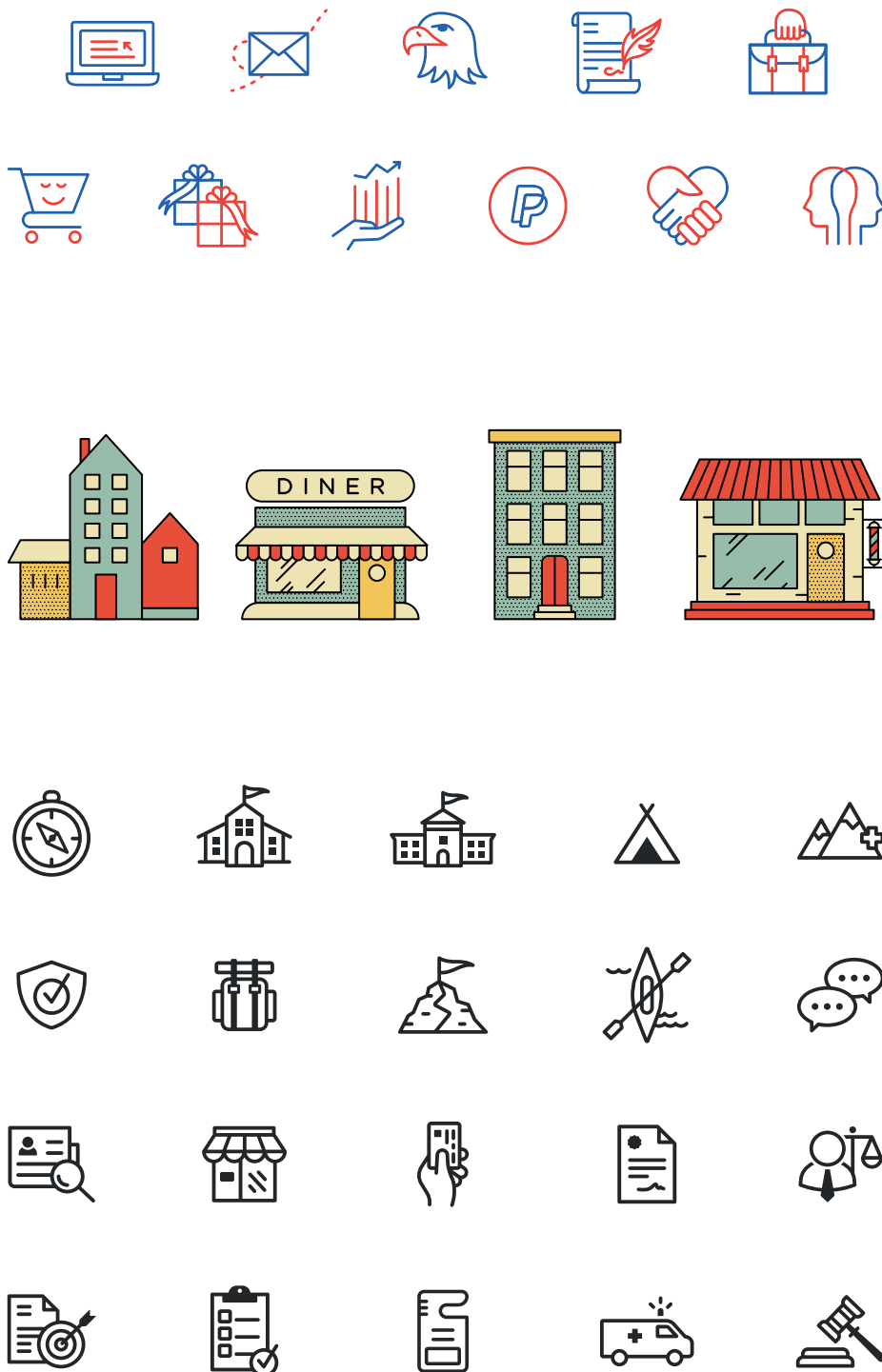
Project: Illustrations  
& Icons

Deliverables:

Various spot illustrations and icons.

Background:

Custom illustrations and icons for various client needs, including Travis Mills Foundation, Made on Main (a client of Fact & Fiction), and Pinnacle Risk Strategies.



PORTLAND

DESIGN CO.

## Client Base

### Art, Design, Entertainment

Maine Ad + Design  
Nicola's Home  
Susie Grisanti  
Jai-Dee Dancewear  
Wallace James Co.  
Camden International Film Festival  
Phish

### Commerce, Services, Apparel

Patagonia  
L.L.Bean Corporate Communications  
Maine Beer Company  
Sea Bags  
Rockport Marine  
Harmon's Floral Co.  
Lisa Marie's Made in Maine  
Arctic Lynx  
Belted Cow Co.  
Eco Kids  
Frawley Construction  
Kizingo Kids  
Kate Nelligan Design  
Uncharted  
Watts in Maine  
Spruce Creek Gift Co.  
Parallel Adventures

### Education, Government

Aquaculture Research Institute at UMaine  
Maine Community College System (7 schools)  
City of Portland  
City of South Portland  
Office of Economic Opportunity  
Greater Portland Council of Governments  
PACTS  
Maine Department of Fisheries & Wildlife  
One Climate Future  
Betsy Sweet for US Senate

### Law, Non-Profit, Financial

Lambert Coffin Attorneys  
Morgan Stanley  
Maine Community Foundation  
Pinnacle Risk Strategies  
Travis Mills Foundation  
CHIME of Maine  
Lerner Foundation  
Aspirations Incubator Program

### Real Estate

Abode Real Estate Group  
The Rathband Company  
Gray Fox Real Estate

### Technology

HighByte  
Tidal Bore  
Hyperion Marine Group  
Brunswick Aviation Services

### Restaurant, Hospitality

Ocean Spray  
Ventura Foods  
Claremont Hotel  
Blythe & Burrows  
Royal River Grillhouse  
Tuscan Brick Oven Bistro  
Tuscan Table  
Bread + Butter Catering  
Gorgeous Gelato  
Monte's Fine Foods  
The Grill Room  
Eros Oyster  
North Main Café  
The Barn at Moody Mountain Farm  
Judy Gibson (Coming soon)  
Maggie Mae's (Coming soon)

## Proposal

### Hourly information design:

\$110 / hour

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### Payment—

Invoices are sent on the 1st of each month. Payment is due upon receipt of the invoice.

### Additional and ongoing design needs—

Including, but not limited to, print collateral, advertising, consultation, promotional materials, internal templates and presentations, updating guides/fact sheets, employee toolkits, wayfinding signage, advertisements, etc.: \$110/hr





Thank you!

Please contact [lk@portlanddesignco.com](mailto:lk@portlanddesignco.com) with any questions concerning this RFP.



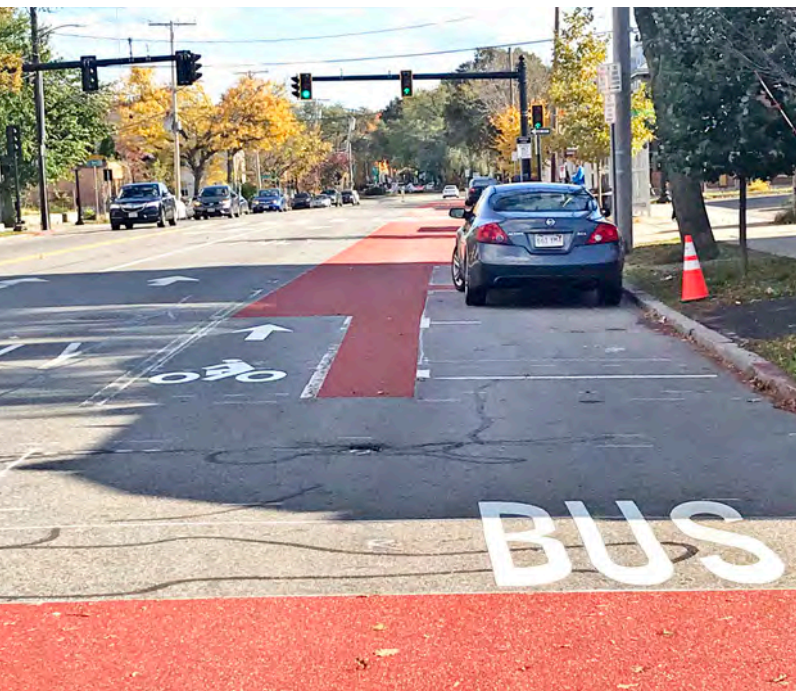


## PROPOSAL

Submitted to Town of Arlington

## Sustainable Transportation Plan - RFP #19-50

November 5, 2019



Transportation Solutions  
Building Better Communities



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Cover Letter

Firm/Team's General Experience

Firm/Team's Experience with Municipalities

Work Plan – Project Understanding & Scope of Services

Schedule

Resumes

References

Other Pertinent Information & Evaluation Criteria

Required Forms

Insurance Certificate







# Cover Letter



McMAHON ASSOCIATES  
120 Water Street, 4<sup>th</sup> Floor  
Boston, MA 02109  
p 617-556-0020 | f 617-556-0025

#### PRINCIPALS

Joseph J. DeSantis, P.E., PTOE  
John S. DePalma  
Casey A. Moore, P.E.  
Gary R. McNaughton, P.E., PTOE  
Christopher J. Williams, P.E.

#### ASSOCIATES

John J. Mitchell, P.E.  
R. Trent Ebersole, P.E.  
Matthew M. Kozsuch, P.E.  
Maureen Chlebek, P.E., PTOE  
Dean A. Carr, P.E.  
Jason T. Adams, P.E., PTOE  
Christopher K. Bauer, P.E., PTOE

#### FOUNDER

Joseph W. McMahon, P.E.

November 4, 2019

Adam W. Chapdelaine  
Town Manager  
Town of Arlington  
730 Massachusetts Avenue  
Arlington, MA 02476

RE: **Sustainable Transportation Plan, RFP #19-50**

Dear Mr. Chapdelaine and Selection Committee:

**McMahon Associates, Inc. (McMahon)** is pleased to submit our proposal to provide services to develop a sustainable transportation plan for the Town of Arlington with a 20-year vision that will balance the needs of all transportation modes. We understand the Town's goals to provide environmentally-sustainable travel modes, such as walking, bicycling, public transportation, rideshare, micro-mobility, and low-carbon technologies, including electric automobiles.

#### Introduction to McMahon

Since 1976, **McMahon** has specialized in delivering innovative transportation planning, engineering, design, and construction services to our clients. With more than 200 professionals in 15 offices along the east coast, including offices in Boston, Taunton, and Westfield, MA and Lincoln, RI, our firm has the talent, ability and expertise to address transportation assignments from initial planning to design to bidding and construction. McMahon has extensive experience with integrating bicycle, pedestrian, and transit enhancements into transportation system improvements to reduce traffic congestion, improve public health, and support local economic development. Our staff works closely with municipal officials, regional public agencies, MassDOT, business owners, education institutions, and other stakeholders on comprehensive, multimodal streetscape design projects and transportation infrastructure improvements in both urban and rural settings. Our projects often involve collaboration with and coordination of multidisciplinary teams. In the completion of these projects, McMahon has developed safe and efficient project solutions that improve transportation and create more livable communities.

#### Introduction to Schweiger Consulting LLC

**Schweiger Consulting LLC** is a firm that specializes in providing detailed technical assistance to public transportation and local governmental agencies in the areas of technology planning, procurement, implementation, evaluation, research and training. Carol Schweiger, the firm's President, has 40 years of experience, and is nationally and internationally recognized in transportation technology consulting. Her wide-ranging and in-depth expertise is in several specialty areas including systems engineering, technology strategies for public agencies, public transit technology, new mobility strategies (e.g., mobility as a service and mobility on demand), and traveler information strategies and systems.

### Experienced Leadership

Leading our team as **Project Manager** is **Christi Apicella, AICP**. Christi has a passion for developing transportation solutions that create more vibrant, livable communities. Christi has spent more than 21 years in transportation planning and community development for both public and private clients. As a senior transportation planner, she has led numerous multimodal transportation projects in advancing “active transportation” modes in urban environments, including her prominent role in many transportation initiatives in nearby Cambridge. Christi’s project work also includes leading ***master/community plans for Canton, Sharon, Bridgewater, Brockton, Tewksbury and Easton, Massachusetts***. Christi’s visioning and strategic nature to transportation planning provides a clear understanding to stakeholders and the public on how to bring their goals to a reality.

**I, Maureen Chlebek, PE, PTOE** will serve as Principal-in-Charge. With more than 34 years of transportation engineering experience, I have managed numerous projects for state, municipal and private clients. As Vice President and New England Regional Manager, I will provide the team with the resources necessary to complete this project on time and on budget.

McMahon is confident that our team offers a number of distinct advantages to the Town of Arlington. Chief among these advantages is our team’s ability to provide experienced and responsive multimodal planning and engineering professionals. Furthermore, we plan to utilize traditional methods as well as apply newer technology for this plan. We have been described as “urbanist transportation engineers,” “progressive thinkers,” and “broad-minded analysts”. This is evident in the project approach that we have proposed.

### The McMahon team offers you the following:

- A multi-disciplinary team of professional planners, multimodal engineers, and public engagement specialists
- Expertise in Complete Streets design standards, having planned and designed numerous pedestrian and bicycle facilities with transit accommodations
- Experience in preparing transportation master plans that are multimodal, reflect the municipality’s vision, and offer details on the implementation and priority planning for the resultant action items
- Considerable experience facilitating comprehensive community engagement programs
- A successful track record of providing customized solutions and completing projects on-time, within budget, and with high quality deliverables

### Primary Contact

**Christi Apicella, AICP**

(617) 556-0020

[capicella@mcmahonassociates.com](mailto:capicella@mcmahonassociates.com)

We acknowledge Addendum No. 1 to this RFP. McMahon is excited for the opportunity to assist the Town of Arlington in developing this sustainable plan to increase the use of environmentally-sustainable transportation modes. If you have any questions or need additional information, please contact Christi Apicella or me at (617) 556-0020 or via email to [capicella@mcmahonassociates.com](mailto:capicella@mcmahonassociates.com) or [mchlebek@mcmahonassociates.com](mailto:mchlebek@mcmahonassociates.com).

Sincerely,



Maureen Chlebek, P.E., PTOE  
Vice President & New England Regional Manager





Firm/Team's General Experience



## Firm /Team General Experience

### McMahon Associates, Inc.

As noted in our cover letter, McMahon has specialized in delivering innovative transportation planning, engineering, design, and construction services to our clients for more than 43 years. McMahon has extensive experience with integrating bicycle, pedestrian, and transit enhancements into transportation systems for sustainable solutions that reduce traffic congestion, improve public health, and support community development.

### Community Transportation Providing Innovative Solutions

McMahon's Community Transportation group is a multidisciplinary team of professional planners, engineers, and public engagement specialists. We focus on transportation to build better communities. Our methods are tailored to the unique needs of a community by combining a local understanding with our technical expertise. Because we plan and design transportation within the context of local streets, we have first-hand knowledge of how to implement safe and efficient transportation facilities for users of all ages and abilities. We recognize that an individual's mobility choices are often a combination of walking, bicycling, driving, and using public transportation. These choices may be combined in a single trip and vary by day, week or time of the year, but all are essential for a person to connect to where they live, work and play.

Our innovative transportation solutions are closely aligned with best practices for planning and design, including *Complete Streets*, *Smart Transportation*, and *Context Sensitive* principles. McMahon provides a Complete Street design with all users in mind, including bicyclists, public transportation vehicles and riders, and pedestrians of all ages and abilities.

Walking and biking are sustainable transportation options that provide numerous community benefits, such as reducing traffic congestion, improving public health, and supporting local economic development. Our approach to bicycle and pedestrian planning and design is comprehensive and multimodal. We often design these facilities in conjunction with bus stops and traffic signals.

Our diverse staff takes an innovative, forward-thinking, comprehensive approach to all of our projects. We are committed to working closely with our clients to develop sustainable transportation solutions. Our professional planners and engineers are passionate about bicycle and pedestrian enhancement projects because we understand the value they bring to our transportation system, our communities, and future generations. In all instances, our goal is to serve the overall public needs, and, in particular, to benefit the traveling public.

McMahon's experience is unique in that we provide transportation services to a wide range of clients, with differing needs, issues, and priorities. We serve municipalities, state DOTs, regional planning organizations, transit agencies, and private sector clients, whose projects impact state and local roadways. While each of these clients has



### Keeping All Users in Mind

Our innovative transportation solutions are closely aligned with best practices for planning and design, including Complete Streets, Smart Transportation, and Context Sensitive principles.



### Multimodal Design

We are committed to working closely with our clients to develop sustainable transportation solutions to benefit the traveling public.

individual perspectives towards their transportation needs, McMahon has successfully been able to not only address their needs, but to help them see the “bigger picture” and work in a comprehensive manner towards the most effective solutions for all network users.

## Collaborative Public Participation

Engaging stakeholders and members of the public early and often during the planning and design process can ensure that transportation improvements meet the community’s needs and vision. Comprehensive and inclusive outreach efforts help to engage all people in shaping transportation improvements, including users of all modes. Additionally, successful stakeholder and community involvement can help to maintain a project’s schedule and budget.

McMahon has extensive experience with guiding and facilitating a broad range of community involvement activities for transportation projects. McMahon utilizes a variety of methods and outlets to share project information, engage all members of the community, and listen to community concerns. McMahon also focuses on developing easy-to-read materials and graphics that convey information and educate the public using maps, photographic renderings, and traffic simulation videos.

We have experience with synthesizing comments from various stakeholders to build consensus on project goals, critical issues, preferred alternatives, and priority improvement plans. Through presentation boards and slides, newsletters, and websites, McMahon offers customized community engagement strategies based on the project type, phase, and context.

## Schweiger Consulting LLC

Schweiger Consulting LLC is a firm that specializes in providing detailed technical assistance to public transportation and local governmental agencies in the areas of technology planning, procurement, implementation, evaluation, research and training. Carol Schweiger, the firm’s President, has 40 years of experience, and is nationally and internationally recognized in transportation technology consulting. Her wide-ranging and in-depth expertise is in several specialty areas, including systems engineering, technology strategies for public agencies, public transit technology, new mobility strategies (e.g., mobility as a service and mobility on demand), and traveler information strategies and systems. Carol has provided over 60 transportation agencies with technology technical assistance, including developing technology strategies based on needs assessments; developing structured processes to procure and implement technology systems; applying systems engineering to technology projects; providing procurement and implementation assistance; developing and delivering transit technology training; evaluating technology deployments; conducting mobility research and developing new mobility strategies.



### Meeting the Community's Needs and Vision

Collaborative outreach efforts engage all people in shaping transportation improvements, including users of all modes.



### Sharing Project Information

We focus on developing easy-to-read materials and graphics that convey information and educate the public.

## Schweiger Consulting LLC

### In-depth Expertise

Carol has provided transportation technology consulting, including mobility research and new mobility strategies, to over 60 transportation agencies.





## Firm/Team's Planning Experience with Municipalities



## Experience with Municipalities

### Serving the Public Sector

In addition to working with state departments of transportation, McMahon serves local municipalities, counties, and transportation planning agencies. As such, we are keenly aware of the needs of public sector clients, especially related to sound development growth from the perspective of a municipality. We tailor our approach to each situation to offer the best solutions. Our project success is complemented by our ability to manage a community and stakeholder outreach process and lead a group to consensus. McMahon works interactively with clients and project stakeholders and, when appropriate, modifies the interactive process to draw out the input, priorities, and ultimate strategies of a community group.

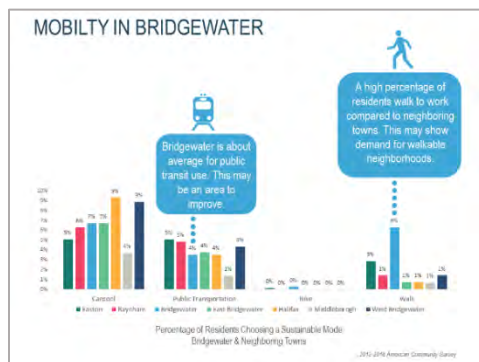


### Master Plans/Comprehensive Community Plans

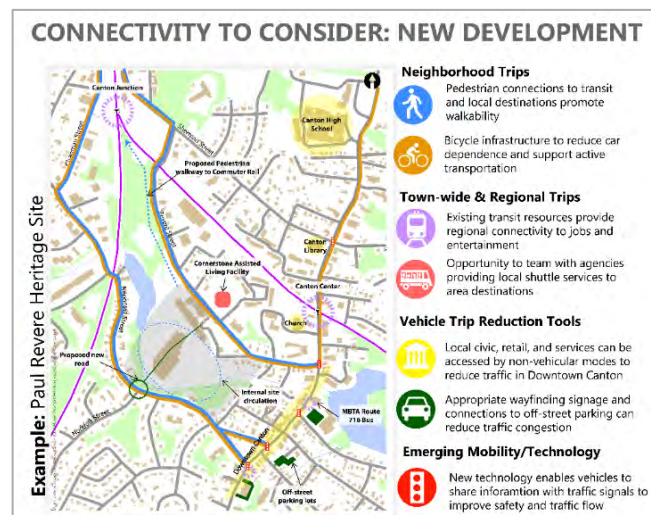
McMahon has served as part of multi-disciplinary teams to prepare the transportation element of numerous master plans/comprehensive plans for municipalities and has been responsible for the compilation and assessment of existing data related to the transportation element of master plans/comprehensive plans, including multimodal transportation infrastructure, traffic growth trends, crash data and public transportation options. Coordination with local agencies was key.



McMahon has conducted interviews with municipal staff to ensure that various perspectives were considered, in conjunction with the public participation process. Additionally, McMahon has assisted with the development of baseline reports, goals and policies, and action plans that reflect the consensus of stakeholders. Preparation of the draft and final versions of the transportation element for each community have been performed. Work has been provided for the following communities:



City of Brockton, MA	Town of Easton, MA
City of Keene, NH	Town of Harvard, MA
City of Waltham, MA	Town of Middleborough, MA
Town of Andover, MA	Town of Narragansett, RI
Town of Boxborough, MA	Town of Seekonk, MA
Town of Bridgewater, MA	Town of Sharon, MA
Town of Canton, MA	Town of Shrewsbury, MA
Town of Dedham, MA	Town of Tewksbury, MA



## Transit Planning and Design

McMahon provides a diverse range of transit planning and design services to municipalities with a focus on improving better access to transit for all citizens regardless of ability. Transit planning analysis and design go hand-in-hand with traffic engineering in urban, suburban and rural environments. We actively look past the bus stop or station to incorporate holistic connections for users of all modes – pedestrians, bicyclists, transit users and drivers for a full Complete Street approach that fully embraces and plans for all modes of transportation.



As the bus shares the road with other transportation modes, implementation of on-road improvements requires a full understanding of traffic and signal operations, pedestrian and bicycle accommodations, safety, and parking utilization. We strive to give buses and bus riders the focus they deserve, and for every project, we incorporate each community's individuality, requirements, and aesthetics. Our staff provide solutions that serve the needs of bus passengers, as well as address local concerns about traffic, bikes and pedestrians.



Relevant experience includes:

### MBTA Key Bus Routes Improvement Project Greater Boston, MA



Bus stop planning and design services to enhance passenger accessibility, reduce travel times, and improve operations along its key bus routes. McMahon's tasks included developing bus stop consolidation and optimization plans for 15 bus routes that achieved a 25% reduction in stops, decreased travel times, improved operations, and provided opportunities for rider amenities at proposed locations. Recommendations were made in the context of minimizing impacts to on-street parking and level of service for general traffic. Design plans were prepared for 800 bus stops, including 80 locations with new bus shelters. In Arlington stops on MBTA Route 77 along the Massachusetts Avenue corridor were reviewed for stop consolidation, reconstruction, and accessibility improvements.

### MBTA Bus Stop Accessibility Improvements Greater Boston, MA



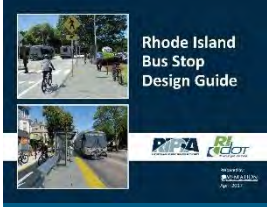

Bus stop planning and design services to audit and design improvements to select bus stops across its system with a focus on ADA and MBTA accessibility requirements and safety concerns. A prioritization effort to select bus stops with the most critical barriers or egregious accessibility deficiencies, and thereby a safety concern, was undertaken. McMahon prepared preliminary design plans for improvements at 50 priority bus stops in nine municipalities. McMahon subsequently developed preliminary design plans for accessibility improvements and elimination plans for 25 stops in South Boston, including curb extensions and shelters at 10 of these stops. We also performed detailed audits at an additional 70 bus stops identified as "critical" stops in the MBTA's Plan for Accessible Transit Infrastructure (PATI) project.

### PACTS Transit Stop Access Project Portland, ME



McMahon led Phase I of the Transit Stop Access Project, initiated by the Portland Area Comprehensive Transportation System (PACTS), the Greater Portland Council of Governments (GPCOG), and the PACTS Transit Committee (PTC), to improve the accessibility of bus stops region-wide. Phase I included identifying high priority bus stops for accessibility improvements; defining amenities for, and possible locations of new regional transit mini-hubs; and highlighting potential bicycle and pedestrian accommodations to improve mobility to stops. Phase 2A, will concentrate on finalizing



	locations and the types of enhancements to be undertaken at each location, and development of conceptual design plans and an opinion of probable construction cost.
<b>Rhode Island Bus Stop Guide</b> Rhode Island Statewide 	McMahon developed the <i>Rhode Island Bus Stop Design Guide</i> . The guidelines included bus stop design scenarios that emphasize pedestrian safety and accessibility, and provided recommendations on how RIPTA, the Rhode Island Department of Transportation (RIDOT), and local communities, can successfully incorporate transit infrastructure into the state's roadway network, in accordance with Complete Streets directives. An important goal of the project was to develop a systematic approach for the inclusion of transit infrastructure in RIDOT roadway design projects, including a timeline for coordination between RIPTA and RIDOT and a standardized review process for both agencies to review the proposed transit infrastructure. Interviews with both RIPTA and RIDOT personnel were conducted to better understand the current process. The development of the guide also involved an extensive public outreach process that gathered input from riders, municipal officials, and other project stakeholders.
<b>BRTA Shared Ride Access to Work Study</b> Berkshire County, MA 	The BRTA tasked McMahon with examining the unmet employment transportation needs of low-income people living in remote towns of Berkshire County and develop recommendations for a shared-ride, work-related transportation network. To examine unmet employment transportation needs, McMahon evaluated demographic characteristics using existing reports, BRTA rider surveys, and U.S. census data. McMahon also analyzed economic data to identify major employers and employment centers. Demographic and employment data were analyzed and mapped in relation to existing transportation services using GIS to determine unmet employment transportation needs.

Our past experience demonstrates our technical skills and responsiveness to our client's requirements, and proves that we are committed to prioritizing your needs.

## Experience Matters

The following pages describe our team's relevant experience, which reflects our capabilities in the key scope elements and our ability to provide an integrated and innovative approach to each phase of your project.



#### CLIENT

City of Waltham

#### McMAHON ROLE

Prime Consultant

#### COMPLETION DATE

2017

#### SERVICES

- Data collection
- Field reconnaissance
- Traffic analysis
- Safety analysis
- Parking
- Complete Streets
- Bus route planning & bus stop design
- Transit analysis
- Parking/curb use
- Conceptual design
- Short- & long-term recommendations
- Strong implementation strategy
- Transportation master plan report
- Stakeholder coordination & public outreach

#### CLIENT REFERENCE

Michael Garvin, PE

Traffic Engineer

City of Waltham

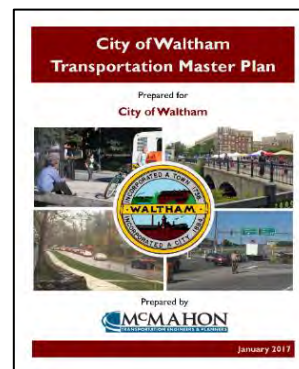
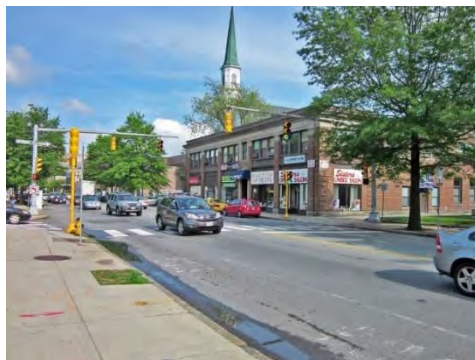
119 School St., Room 10

Waltham, MA 02451

781.314.3404

[mgarvin@city.waltham.ma.us](mailto:mgarvin@city.waltham.ma.us)

## Waltham Transportation Master Plan, Waltham, MA



McMahon was retained by the City of Waltham to prepare a transportation master plan for the entire City to map out its transportation future. The City sought to identify and prioritize transportation infrastructure improvements in a 10-year action plan. Employing a strong implementation strategy, existing transportation conditions and safety issues were evaluated for all modes at 91 intersections, and deficiencies in pedestrian and bicycle facilities, transit options, and parking accommodations were identified.

Specific to bicyclists, the city-wide, short- and long-term recommendations focused on identifying a current and future bike network with both on-street and off-road connections, bicycle parking at key locations, educational and encouragement programs, responsive improvements for high bike crash locations, policy changes to motivate bicycle mode through development incentives, the implementation of a bike-share program, and the implementation of “pop-up” or “pilot” bike facilities, as well as the implementation of bicycle features, such as bike boxes, bicycle crosswalks and signals.



The top 20 intersections and five major corridors were selected for mitigation in the immediate-, short- and long-term solutions as part of the 10-year action plan. Conceptual sketch plans, including geometric and intersection improvements, bus stop optimization, pedestrian accessibility and bicycle accommodations following MassDOT’s Complete Streets guidelines, were developed. In addition, recommendations for transit signal priority and curb extensions were provided for two busy commercial corridors, following a stop to stop bus travel time analysis, as well as a concept design for an enhanced transit hub at the train station.

A final transportation master plan report was prepared for the city with proposed recommendations for future improvements. Stakeholder and public outreach were coordinated throughout the project including an online survey made available to residents and commuters to provide input on existing transportation needs and deficiencies.

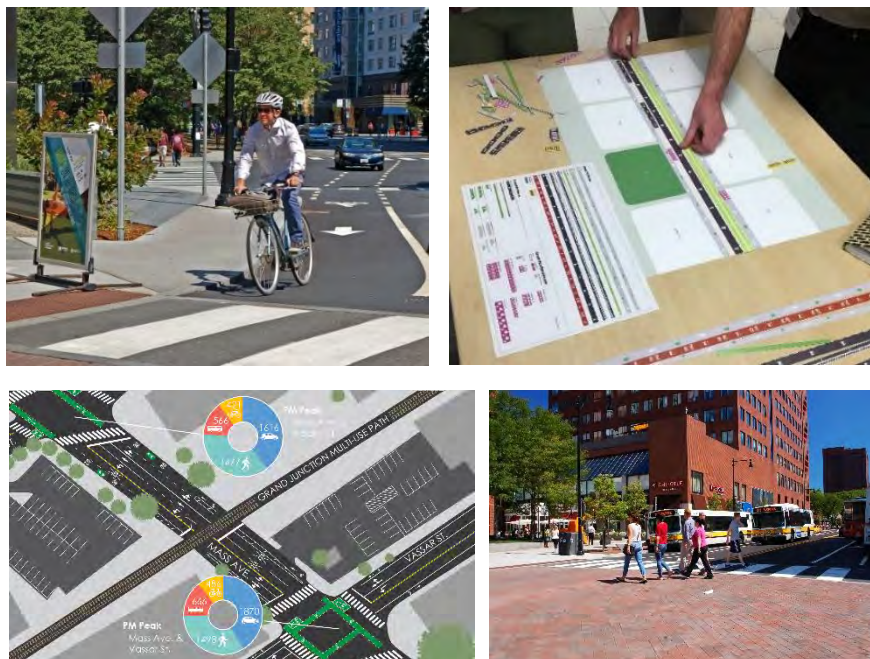
**CLIENT**

City of Cambridge

**SERVICES**

- Multimodal safety improvements
- Bicycle & pedestrian accommodations
- Concept design
- Final design
- Data collection
- TIS data entry
- TIS database development
- Bus stop & bicycle integration
- Separated bicycle lane design
- Complete Streets design
- Protected intersection design
- Multi-use path design
- Level-of-service analysis
- Bicycle counts
- Public outreach & community engagement

## On-Call General Engineering “House Doctor” Contracts, Cambridge, MA



### Improving Transportation in Cambridge

Since 2010, McMahon has been providing a wide range of multimodal projects – a community-wide effort to improve transportation with a focus on how people move – to the City of Cambridge under its Engineering House Doctor contracts. We have done so as a subconsultant on two teams. Our services have been provided to three different City departments: Department of Public Works, Office of Community Development, and the Traffic, Parking, and Transportation Department.

### Multimodal Safety Improvements

Many of our projects include analyzing complex urban intersections in vibrant commercial and residential areas that have high demand for multimodal solutions. We have been part of multiple streetscape and intersection redesign projects throughout the City, including the **Inman Square Intersection Safety Improvement Project**. McMahon’s role was to develop solutions to address the size and complexity of the intersection, which is challenging for bicyclists and drivers, while pedestrians currently face long delays waiting to safely cross. Our multimodal design improvements included providing separated bicycle lanes, protected intersection treatments, and improving pedestrian facilities.



### Transit Planning

As part of the **Cambridge Bus Service Planning Project**, McMahon was responsible for assisting the City of Cambridge in establishing its priorities and providing input into the MBTA's Better Bus Project (BBP) service planning process, using an outreach process for residents, workers, and visitors. McMahon developed the approach for using public input from an online survey and Wikimap to understand alignment with MBTA service delivery goals, as well as with City priorities for bus service. McMahon guided the project team on creating transit service questions and summarizing and graphically articulating prioritized bus service improvement ideas, then led the development of a written report and graphics to summarize recommendations based on prioritization.

### TIS Database

McMahon developed a traffic count management geodatabase to help the City of Cambridge gain a better understanding of traffic patterns, mode choice, and the impact of Transportation Networking Companies (TNCs) on travel in the City. Using Microsoft Access and ArcGIS, the database stores traffic data collected as part of Traffic Impact Studies, construction projects, and counting programs in a central location. The database features custom forms to enter and review automatic traffic recorder (ATR) and manual turning movement count (TMC) data in 15-minute or 60-minute intervals, automatically determines peak hour times and volumes, and has the ability to determine seasonal and annual trends by travel mode. Data points are georeferenced, allowing for the data display and spatial analysis using ArcGIS or other GIS applications.



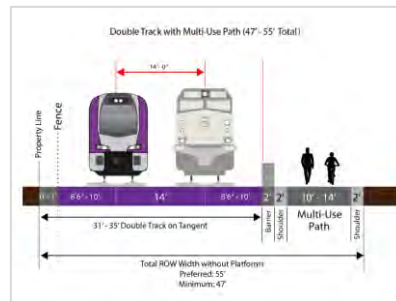
### Community Engagement

For the **River Street Reconstruction Project**, McMahon assisted the City of Cambridge staff by developing and leading public engagement activities, as well as leading the multimodal transportation analysis. Public engagement included the creation of a robust Public Engagement Plan, organization of visually compelling presentations for the



City Manager-appointed Working Group and the broader community, as well as interactive exercises and a multi-day design charrette for Carl Barron Plaza.

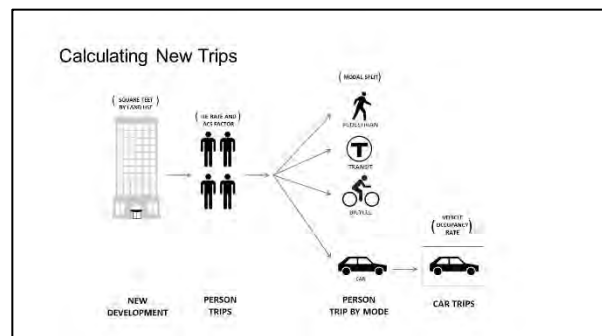
For the **Grand Junction Multi-use Path Design Project**, McMahon is supporting the City's goals with regard to active transportation, complete streets, vision zero, and neighborhood context by developing and leading public engagement activities, such as creation of a robust Public Engagement Plan, preparation of a project fact sheet, coordination with applicable agencies, and organization of visually compelling presentations for the City Manager-appointed Working Group, area stakeholders, and the broader community.



For the **Willard Street Drainage Improvements Project**, McMahon led the public outreach process and served as point of contact for neighborhood questions and concerns for the design and construction of a sewer and stormwater infrastructure project on a neighborhood street. Our staff worked with the City to organize and publicize public meetings and workshops; implemented outreach to abutters; worked with the project team to develop construction phasing to minimize neighborhood impacts; and facilitated discussions for potential surface improvements to promote traffic calming and improvements to bicycle and pedestrian accessibility.

### Transportation Planning Services

As part of a team, McMahon provided transportation planning services to support the analysis of development scenarios as part of **Envision Cambridge Comprehensive Plan**. Using the City of Cambridge's Critical Sums Analysis (CSA) methodology, McMahon assisted the project team in evaluating the potential impacts of vehicular trips associated with land use scenarios for planning areas and corridors. McMahon worked with the Cambridge Community Development Department (CDD) to evaluate the development projections through Envision Cambridge, apply mode splits, and determine resulting trip generation and traffic impacts for various intersections.



#### CLIENT

Boston Transportation  
Department (BTD)

#### McMAHON ROLE

Subconsultant

#### COMPLETION DATE

Ongoing

#### SERVICES

- Safety analysis
- Traffic analysis
- Concept design
- Design Report
- Construction plans
- BTD coordination
- Public outreach
- Traffic calming
- Pedestrian & bicycle accommodation

#### CLIENT REFERENCE

Stefanie Seskin  
Active Transportation Director  
Boston Transportation Dept.  
1 City Hall Square, Room 721  
Boston, MA 02201  
(617) 635-4156  
[Stefanie.seskin@boston.gov](mailto:Stefanie.seskin@boston.gov)

## On-Call Traffic Calming Planning & Design, Boston, MA



McMahon is working with the Boston Transportation Department (BTD) to analyze various neighborhoods in the City of Boston and determine appropriate traffic calming strategies (including raised intersections, speed humps, contraflow bike lanes, roundabouts, etc.) that could be implemented in these neighborhoods to help improve safety, slow vehicular speeds, and improve the neighborhood.

McMahon began by gathering data and preparing concepts for the potential design that were presented to the neighborhoods to gather feedback about the potential design elements. McMahon participated in the neighborhood presentations to assist in the communication of the potential design to residents of the neighborhoods.

McMahon managed the design for the **Mount Hope neighborhood**, located approximately 1 mile south of the Forest Hills Station in Boston. Through coordination with the neighborhood and BTD, various traffic calming solutions have been proposed, including speed humps, contraflow bike lanes, curb extensions, and improved pavement markings and signage including bicycle wayfinding.

McMahon prepared a design report and plans to be reviewed by the City of Boston Public Works Department (PWD) and BTD. A follow up meeting was held between the neighborhood, BTD, and McMahon to review the proposed design and elicit final thoughts from the neighborhood before incorporating both neighborhood and City comments into final design plans.



#### CLIENT

City of Providence, RI

#### McMAHON ROLE

Subconsultant

#### COMPLETION DATE

2017-Ongoing

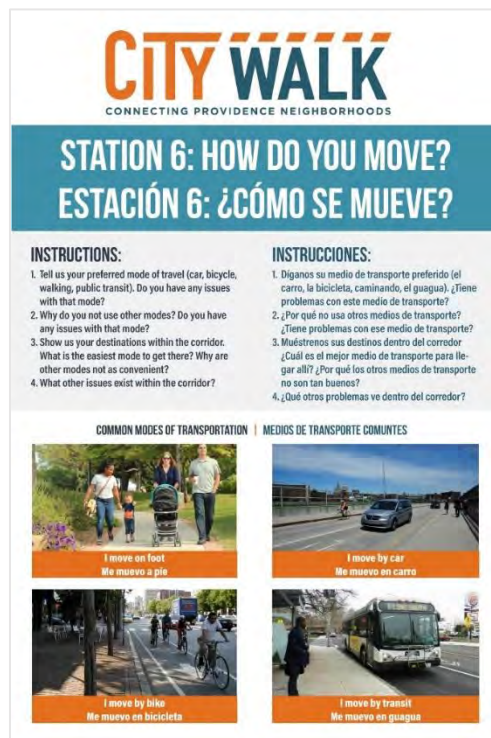
#### SERVICES

- Traffic data collection, including pedestrian, bicycle & motor vehicles
- Traffic analysis with pedestrian & bicycle emphasis
- Transit signal priority analysis
- Multimodal safety analysis
- Pedestrian & bicycle accommodations
- Public outreach (English, Spanish & Khmer)
- Contract documents
- Construction phase services

#### CLIENT REFERENCE

Martina Haggerty  
 Director of Special Projects  
 City of Providence  
 Dept. of Planning & Development  
 444 Westminster St., S-3A  
 Providence, RI 02903  
 (401) 680-8528  
[mhaggerty@providenceri.gov](mailto:mhaggerty@providenceri.gov)

## City Walk Bicycle & Pedestrian Improvement Project, Providence, RI



City Walk is a community-developed planning vision for the city of Providence with the ultimate goal to provide connection between its different neighborhoods enhancing the infrastructure that allows pedestrians and bicyclists to travel within the city. The project was adopted by the City of Providence Planning Department, which is dedicating staff and funding to bring this planning document to realization.

Under this contract, McMahon is part of the team that is developing Phases I and II. Phase I includes Clifford Street between Richmond Street and West Franklin Street, as well as Friendship Street and Pine Street between Broad Street and West Franklin Street. The limits of Phase II include Broad Street between Elmwood Avenue to the north and Hawthorne Avenue to the south, which serves as one of the entrances to the Roger Williams Park.

Phases I and II are expected to provide improvements to the existing pedestrian and bicycle infrastructure to connect the South Elmwood, Washington Park, Elmwood, Lower and Upper South Providence, West End, and Jewelry District. Also, Broad Street includes a significant proportion of traditionally under-served population.

Schweiger Consulting LLC

## Mobility-as-a-Service Business Model Creation, Tompkins County, NY

### SPONSOR

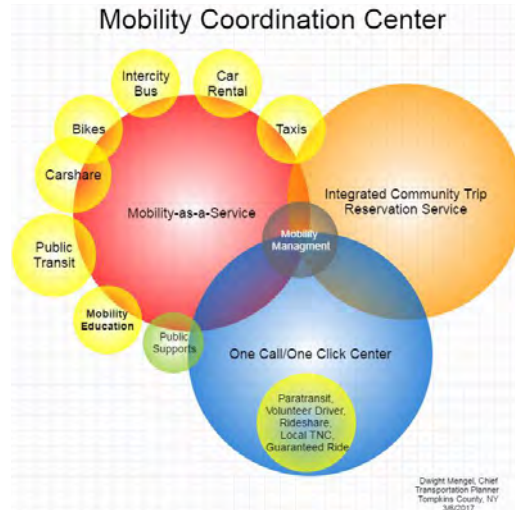
Tompkins County Department  
of Social Services

### COMPLETION DATE

March 2018-September 2019

### CLIENT REFERENCE

Dwight Mengel  
Chief Transportation Planner  
Tompkins County Dept. of  
Social Services  
320 W. Martin Luther King  
Street  
Ithaca, NY 14850  
(607) 274-5605  
[Dwight.mengel@dfa.state.ny.us](mailto:Dwight.mengel@dfa.state.ny.us)



Tompkins County, NY is facing three general mobility needs: Opportunity loss to mobility operators; Barriers faced by people who do not drive a car; and People desiring affordable mobility choices. These three mobility needs are driving change in how the County approaches developing and continuous improvement of the community mobility system. Fortunately, their local cultural norm and expectation is to collaborate between public, private, and institutional partners. This culture of collaboration and innovation encourages thinking outside-of-the-box, including about Mobility-as-a-Service (MaaS). Thus, the County is creating a MaaS business model and will be implementing it first in Tompkins County, then regionally. The greater objective is to provide a MaaS model for small urban and rural communities elsewhere in the country. Carol Schweiger is providing technical expertise to the project team, which is being led by the Tompkins County Department of Social Services.

Schweiger Consulting LLC

## Multimodal and Accessible Travel Standards Assessment

**SPONSOR**

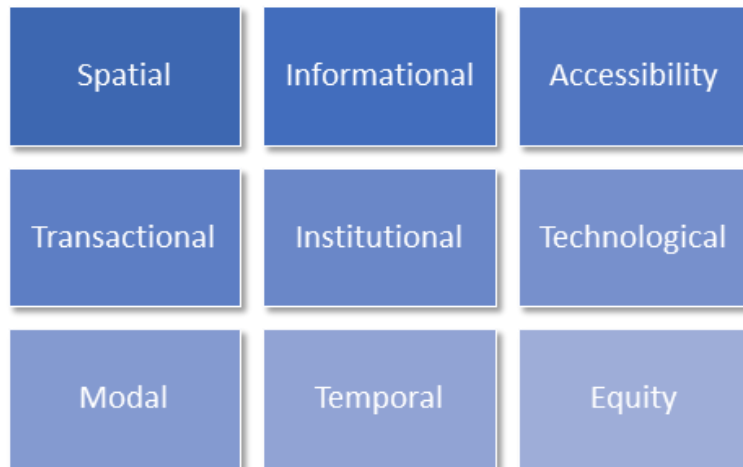
USDOT/Federal Transit  
Administration (FTA)

**COMPLETION DATE**

September 2018-Present

**CLIENT REFERENCE**

Robert Sheehan  
Office of Mobility Innovation  
Federal Transit Administration  
1200 New Jersey Avenue, SE  
Washington, DC 20590  
(202) 366-6817  
[Robert.sheehan@dot.gov](mailto:Robert.sheehan@dot.gov)



Carol Schweiger is providing detailed technical assistance to provide Standards Planning for Multimodal and Accessible Travel by conducting an assessment of standardization needs to support multimodal and accessible travel options, assessing impacts on ITS and related standards that currently exist or are under development, and developing a roadmap for multimodal and accessible travel standardization work. Carol led Task 2 in this effort, which was a Forward-looking Assessment of Multimodal and Accessible Travel. She has developed a methodology and draft framework for grouping user needs, current and future uses by key stakeholder groups and related business impacts and drivers, data, applications and technologies. The methodology identifies where gaps exist in the standards, specification, data collection and technologies needed to support multimodal and accessible travel. Carol reviewed literature available on the current multimodal and accessible travel state of developments via existing materials, and forecast, based on an analysis of the results of the literature review, what additional innovation might impact multimodal and accessible travel standards over the next five to ten years and how this will affect standards requirements.



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# Work Plan

## Project Understanding

We are confident that the McMahon Team is able to partner with the Town of Arlington to develop an action-oriented 20-year vision for sustainable transportation. Our team is excited by the challenge of providing transportation planning and engineering services to develop a future-thinking plan that puts people first by integrating sustainable transportation choices with vibrant public spaces.

Similar to the historic evolution of the horse and carriage to street cars, and Arlington's progression from a street car suburb to a densely populated town where driving is the most common mode of travel, we are now facing the next generation of transportation options. How do we plan for the electrification, automation, and increasingly shared models of the transportation system? How do we re-think the use of right-of-way that has been used for the movement and parking of cars? These are important decisions for incorporating transportation improvements with land use planning and design to reduce the number of vehicular trips in Arlington to support sustainability initiatives. Simultaneous with these efforts is improving the public right-of-way to increase the safety and accessibility for bicyclists and pedestrians to encourage mode shift to more active transportation.

We understand the Town's goals are to increase opportunities for environmentally sustainable modes such as walking, biking, public transit, rideshare, and micro-mobility. Along with this comes planning for future mobility. Future mobility tools like connected and autonomous vehicles (CAVs) may sound like a long way off, but the future is now in many respects with, vehicle-to-infrastructure (V2I), transportation network companies (TNCs), electric vehicles (EVs), Mobility as a Service (Maas), and electrification increasingly prevalent in the Arlington and Greater Boston area.

As detailed throughout our proposal, the advantage of our team is our proven expertise in the planning and multimodal engineering of the street network in urban, suburban and rural settings; Schweiger Consulting's nationally and internationally recognized expertise in transportation technology and new mobility strategies; and our experience working with involved stakeholder groups and community members to develop workable solutions. Because we plan *and* design multimodal accommodations within the context of city streets, we have first-hand knowledge of how to implement safe and efficient facilities for all modes and people.



### People Focused Planning

Arlington's Massachusetts Avenue (Mass Ave.) bus lane focuses on the movement of people over vehicles. Rethinking use of the curbside throughout town is an opportunity to allocate more space to people in non-motorized modes and move higher capacity vehicles more efficiently.





The Town has demonstrated its commitment to improving sustainable transportation options through ample existing studies and initiatives, as well as the creation of several committees, including the Transportation Advisory Committee (TAC), Arlington Bicycle Advisory Committee (ABAC), and Parking Advisory Committee (PAC), in addition to the community groups Walking In Arlington and East Arlington Livable Streets. Further, the Town's involvement with the MAPC regional bike share initiative, member as an At-Large Town on the Boston Region Metropolitan Planning Organization, and recipient of the BostonBRT grant attests to Arlington's commitment to better transportation options. All of these elements create a strong foundation on which to consider how Arlington can create an action-oriented plan for using emerging transportation technologies and trends to create a more sustainable, safe, and livable community.



**arlington master plan**

YOUR TOWN. YOUR FUTURE  
Adopted February 4, 2015  
Arlington Redevelopment Board



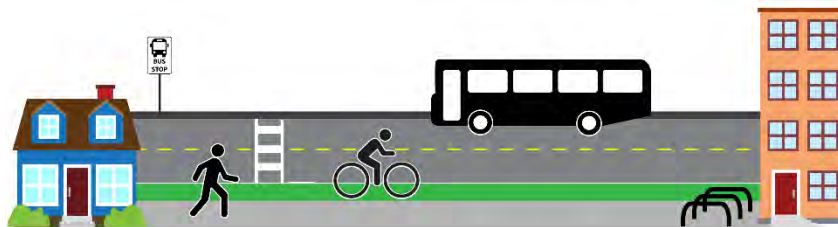
## *It is the year 2040 - how do people in Arlington move through town?*

*How might transportation choices change between 2019 and 2040 as people are presented with a palette of new options through the Sustainable Transportation Plan that increase not only their mobility, but safety and comfort?*

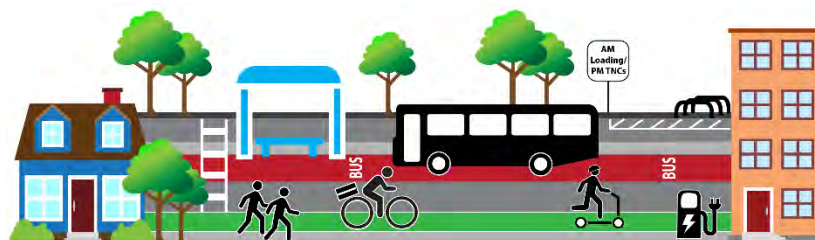
*Imagine what this could look like:*

- A resident who relies on MBTA Route 77 and 79 buses to transfer to the MBTA Red Line now has full scale Bus Rapid Transit (BRT) along the entire Mass Ave. corridor into Cambridge.
- Car ownership has decreased due to a rise in mobile platform car sharing services, so curbsides previously used for parking now provide flexible space for commercial loading, drop-off/pick-up zones for TNCs, and electric vehicle charging stations.
- Congestion on Lake Street has been reduced because safer on-street pedestrian and bicycle facilities through Safe Routes to Schools and Complete Streets initiatives enable more children to walk and bike to school, and provide a supplement to the popular Minuteman Bikeway.
- East Arlington is bustling with activity, as residents of neighboring towns use E-Bikes and E-Scooters to safely and quickly access businesses and entertainment. The rise in these shared technologies leads to a reduction in greenhouse gas emissions.
- First/last mile connections to neighboring commuter rail and subway stations are now provided by automated electric shuttles that efficiently move people due to Arlington's proactive human-centered AV and technology policy.

These are the choices Arlington's Sustainable Transportation Plan can enable.



Existing Transportation Choices



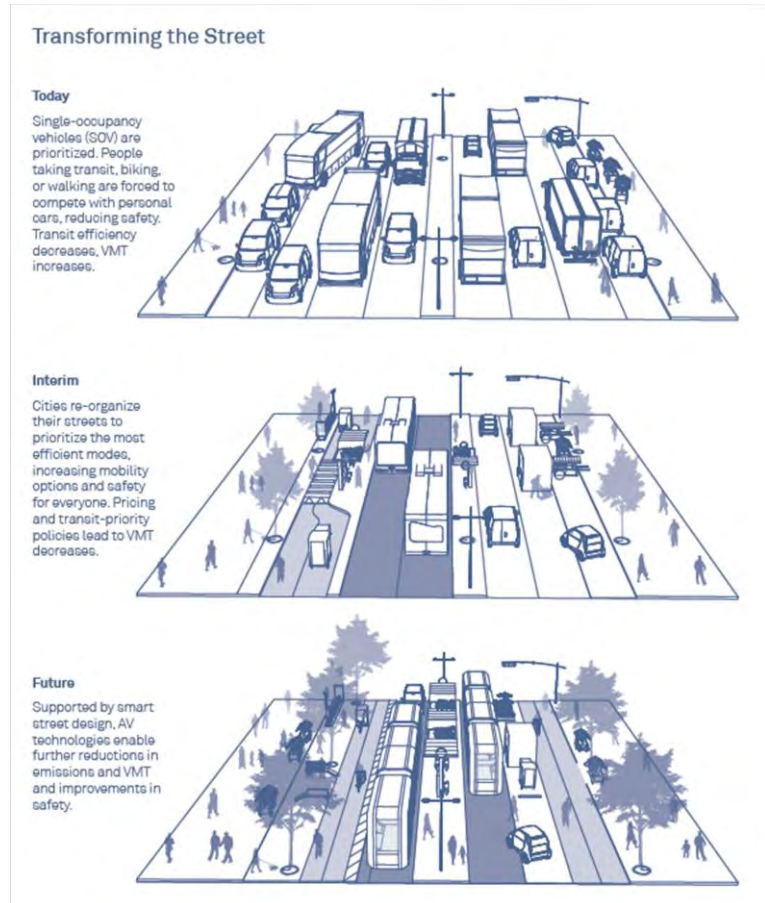
Future Transportation Choices

The future street provides an opportunity to re-think the use of the public right-of-way, focusing on people above all else. The Sustainable Transportation Plan will position Arlington to develop safer streets and use technology advancements to encourage mode shift. The future vision includes such elements as:

- Designing for people, with safe facilities for all ages and abilities,
- Not precluding opportunities for high efficiency means of travel such as BRT, and its advancement to automation,
- Providing incentives for new technologies like EVs and CAVs to contribute to an efficient transportation system,
- Setting policies in place for shared mobility and MaaS models to reduce vehicular congestion from circulating vehicles. This could include pricing or emissions standards.
- Ensuring equitable distribution of micro-mobility options and enforcement to avoid accessibility issues on sidewalks,
- Rethinking the use of the curb to better allocate the needs of people, deliveries and green infrastructure.

“To achieve the best potential outcomes of AV technology, cities will need to grapple now with fundamental issues of how we choose to allocate a finite resource – public space in cities”

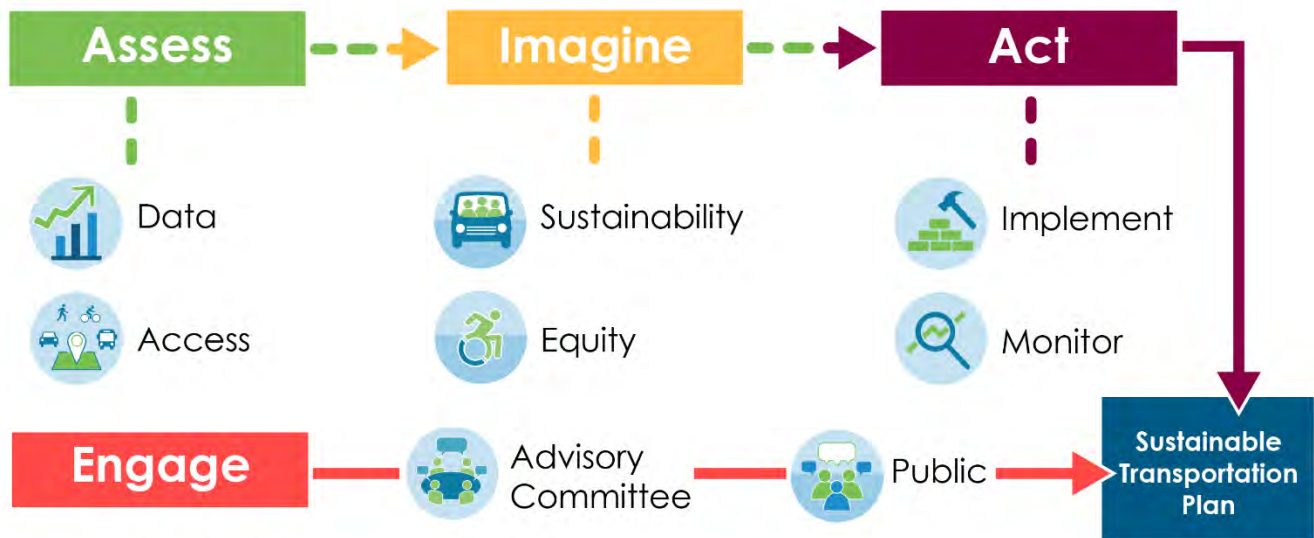
*NACTO Blueprint for Autonomous Urbanism, 2<sup>nd</sup> Edition*



These future transportation choices are already emerging at different scales and locations. The Sustainable Transportation Plan (the Plan) is an opportunity to identify how to best harness these technologies and concepts to make Arlington a more sustainable and comfortable place to live, work, and play. Doing so requires planning for these changes cohesively to meet Town goals for environment, safety, and mobility. A well-developed transportation plan will increase the range of transportation options a resident or visitor may choose. A plan developed even further will not just increase the amount of choices, but the level of safety and comfort that person experiences during their trip on any mode. **Our approach is to not only look at how the transportation network can accommodate different modes sustainably, now and in the future as new technologies emerge, to meet climate change goals, but how to get people where they need to be and where they want to be easily and safely.**



Our understanding of the project tasks and proposed approach to the scope of services is provided in the following section. The scope is a first cut at a potential approach to meet the Town's needs, but we would welcome an opportunity to discuss it further with you and refine the approach accordingly. We focus on right-sizing the project efforts in order to achieve the project goals while minimizing costs. We have identified **four themes** that we believe are the key elements for our unique planning approach, reflective of the project flow that will be carried throughout the proposal:



# Scope of Services

## Assess



### Data

- Multimodal Volumes
- Safety
- Curbuse
- Transit
- Demographics & Mode Share
- Shared Mobility



### Access

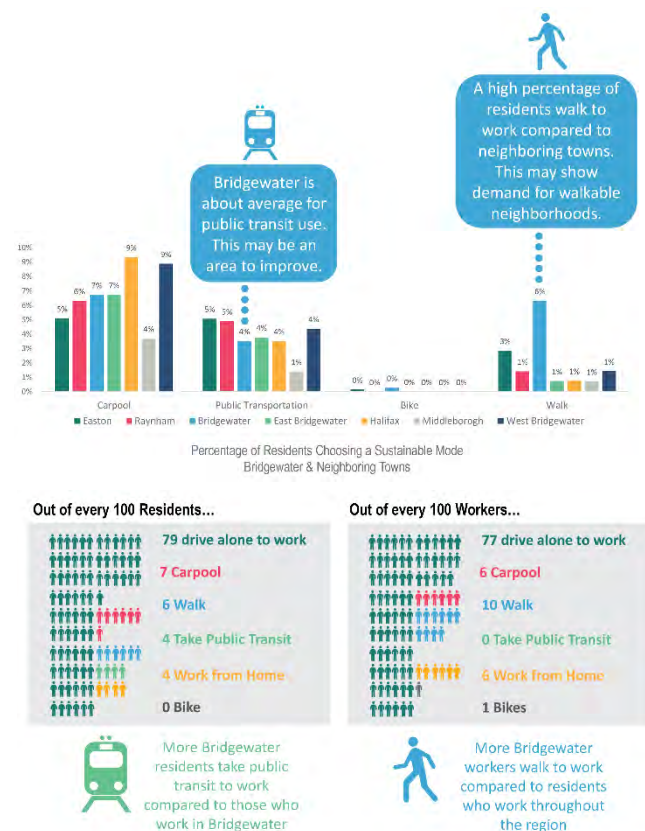
- Multimodal Networks
- Regional Connections
- Land Use & Urban Design
- First/Last Mile

The first question the McMahon Team asks when starting a multimodal transportation plan is “what exists today?” At the outset of the project, the McMahon Team will seek to perform a comprehensive review of existing sources to fully understand the information available from prior efforts. We will pay particular attention to how people travel every day in Arlington in order to find opportunity to shift these daily trips to environmentally sustainable modes, such as walking, biking, public transit, shared mobility, micro-mobility, and low emissions vehicles. We will request documents, such as relevant studies and plans, to gain a better understanding of what information is already available. This review will allow for an efficient use of resources, enabling the McMahon Team to understand prior efforts and the specific concerns of the community.

## Multimodal Transportation Data

Developing a picture of the existing multimodal transportation conditions in Arlington will begin with the use of GIS and other existing data from the Town to capture the current status of the network. The quantitative analysis will include GIS-based data and additional available resources identified by the Town in order to inventory the existing transportation system features and operations, identifying needs and deficiencies. An analysis of demographic data will provide an understanding of current mode split and travel patterns in Arlington and a baseline against which to determine the potential for mode shift to sustainable modes. We will use Census-based data, which focuses on commute to work travel and mode from the perspective of the individual respondent.

A preliminary canvas of Arlington’s transportation system will be performed using commercially available photography (such as Google Earth) and GIS data provided by the Town and other available sources, which will allow on-site field reconnaissance to supplement the existing conditions review to proceed efficiently. We will review the baseline data Town-wide and will conduct a focused analysis at two anticipated future transportation nodes, identified as part of Task 2 – Vision, and provide recommendations as described in Task 3 – Act.



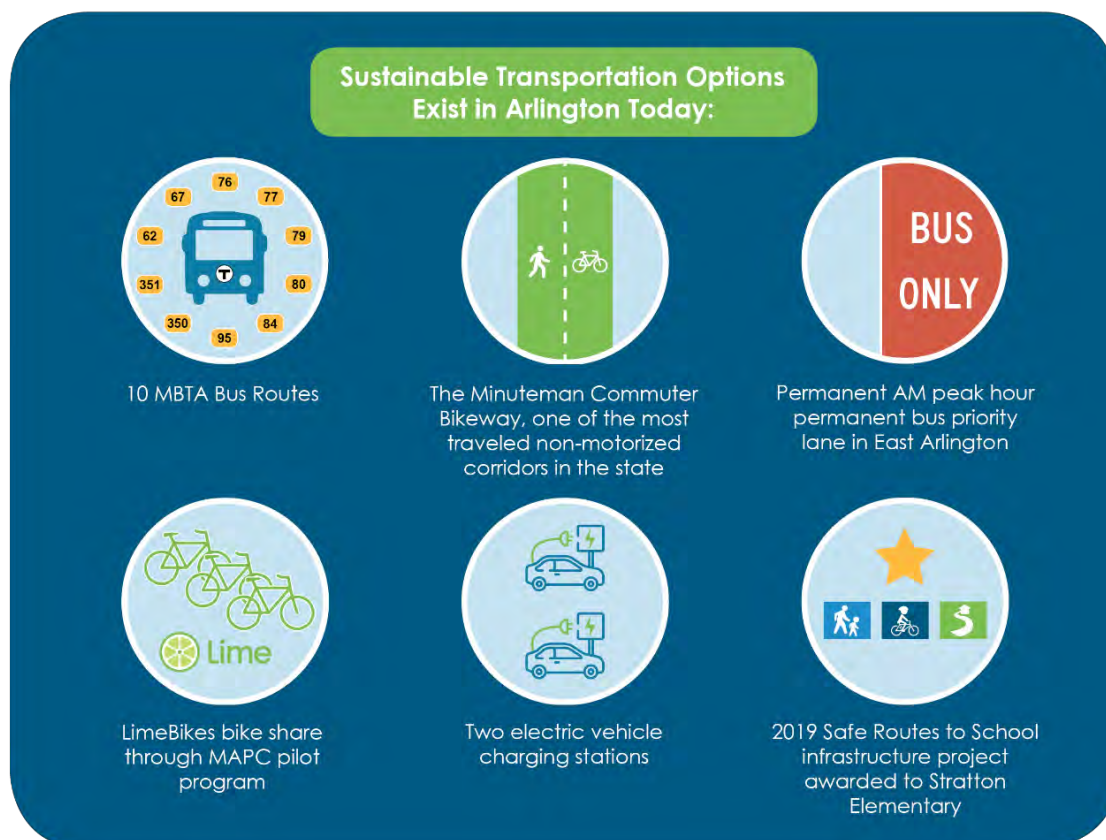
Made to Vision for Bridgewater Residents and Visitors  
2013-2018 American Community Survey

McMahon visualized mode to work census data in Bridgewater and surrounding communities as part of the Bridgewater Master Plan to understand existing travel patterns and opportunities for mode shift to sustainable modes. Colorful charts and icons were used for public presentation to make the material engaging and easy to understand.

We will use the multimodal transportation data to provide focused recommendations at two transportation nodes, as detailed in Task 3 - Act.



Proposed Data	Anticipated Sources
Multimodal user volumes	Existing plans, reports, and studies provided by the Town
Location of MBTA bus routes and stops, bus stop ridership and passenger loads	MBTA, MassGIS
Crash Data at clusters and corridors	MassDOT HSIP crash clusters
Posted speed/regulations	MassDOT, Town
Curb use	Existing parking studies, MAPC
Freight and truck routes	MassDOT, Town
Sidewalk network	MassGIS, MAPC, Town
Bicycle facilities and off-road paths	MassGIS, MAPC Town
Sustainable trip demand	MAPC Local Access Score
Shared mobility trip data	LimeBike, Uber, and Lyft as available
Demographics and mode share	U.S. Census, MAPC
EV charging stations	Town
Wayfinding signage related to walking, bicycle routes, and transit	GoogleEarth, Field Review
Multimodal transportation hubs such as the intersection of Broadway, Mass Ave., and Medford Street	GoogleEarth, Field Review
Proposed multimodal facilities in design or under construction	Town





## McMahon views transportation data holistically, focusing on the movement of people and putting that into the context of a community.

As part of the **Boston Transportation Department Neighborhood Slow Streets** project McMahon developed graphics to illustrate the reduced sight line visibility for cars traveling at 40 MPH vs. 20-25 MPH. We focus on safety as it applies to people and frequently use MassDOT Highway Safety Improvement Program (HSIP) Crash Cluster Data and municipal crash data to understand safety issues, prioritize locations for safety improvements, and illustrate to the public the impact reducing vehicular speeds has on safety. Additionally, we have experience in Vision Zero Planning, Safe Routes to Schools and designing safe crossings, bringing a full understanding of safety from a data analysis as well as a design perspective.

Lowering speed limits can save lives.

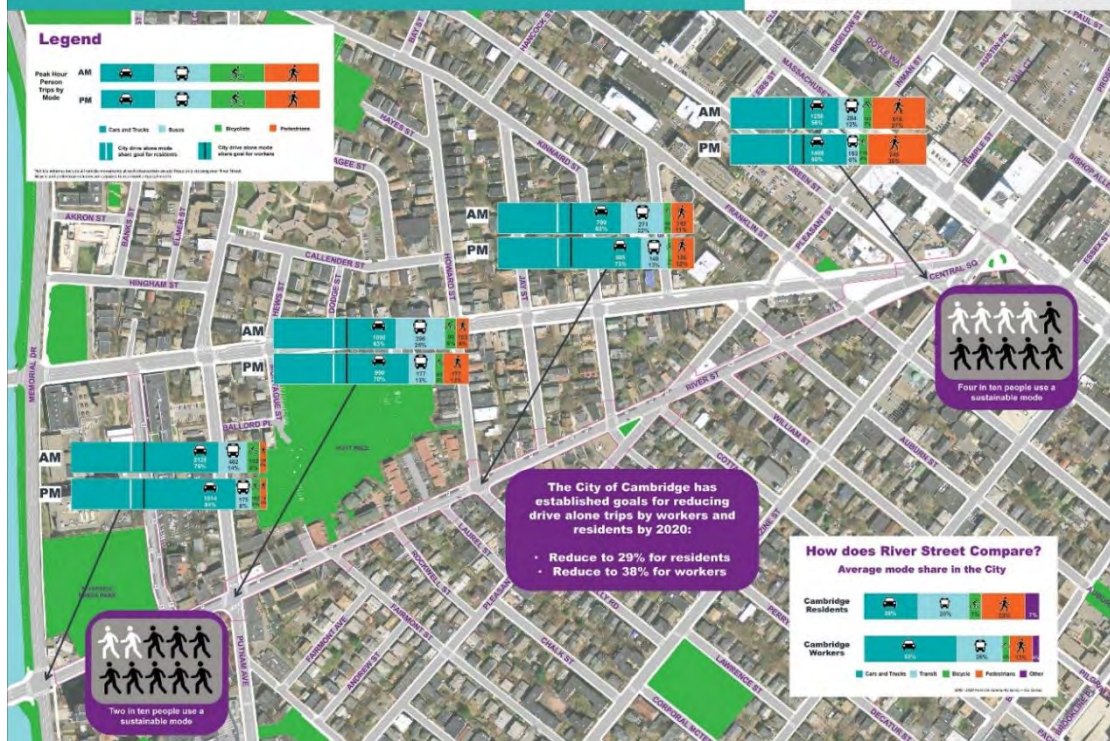


Source: Impact Speed and a Pedestrian's Risk of Severe Injury or Death, Brian Tefft, AAA Foundation for Traffic Safety, 2011



As part of the **River Street Reconstruction** project in Cambridge, MA, McMahon summarized user volumes on the corridor in person trips, combining intersection volume data with bus passenger loads at selected points on the corridor. Mode share on River Street was then compared to the City's established mode share goals for reducing drive alone trips to work.

### HOW PEOPLE USE RIVER STREET TODAY



## Review Existing Policies & Procedures



The McMahon Team will review Arlington's 2015 Master Plan, Town Bylaw Title III, Public and Private Ways, the Traffic Rules and Orders, the Complete Streets Policy and Prioritization Plan, Parking Studies, Mass Ave. Phase 2 Redesign, 2002 Transportation Assessment Study, and the Koff Report, Crosswalk Guidelines, Traffic Calming Guidelines, Bicycle Facility Guidelines, and coordinate with parallel planning efforts for the Climate Action Plan and Net Zero Action Plan.

## Inventory Town's Existing Multimodal Infrastructure



Leveraging available information and data, the McMahon Team will compile a comprehensive inventory of the Town's multimodal network to assist in determining existing resources and needs. It is anticipated that GIS data relative to sidewalk location and condition, marked bicycle on-road bicycle facilities, off-road paths, MBTA bus routes and stops, pedestrian actuated traffic signals, crashes and crash clusters, schools, parking, truck routes, Census data, and Environmental Justice populations will be obtained via both the Town and MassGIS and MassDOT online resources. The McMahon Team will perform field visits to verify and update the above data sources as necessary to provide a complete picture of the multimodal network in Arlington in 2020. In addition, MAPC Local Access Score data layers will be referenced to provide a quantitative reference of pedestrian and bicycle demand on all roadway segments throughout the Town.

## Estimate Current Sustainable Mode Choice to Project Future Demand



The McMahon Team will reference multimodal user volumes collected in the Town of Arlington as part of various planning and engineering studies, as available from DCDP. Peak hour bicycle and pedestrian volumes will be seasonally adjusted based on seasonal variation in similar communities. MBTA Automated Passenger Count (APC) data will be requested from the MBTA to analyze transit ridership. Future demand will be projected based on anticipated growth in population and employment in the Town of Arlington, expected shifts in mode choice, and increased active transportation and shared mobility activity anticipated due to the completion of multimodal infrastructure projects such as the East Arlington bus lane and LimeBikes program.

## Evaluate the Quality and Safety of Existing Roadway Segments



Even on roadways where pedestrian, bicycle, and transit accommodations are provided, the traffic environment may discourage walking, biking, and transit use, effectively creating a gap in the multimodal network. The crash analysis will examine the **pedestrian crash cluster corridor** on Mass Ave. between Arlington High School and Bedford Street, and the **bicycle crash cluster corridor** on Mass Ave. between Linwood Street/Foster Street and Alewife Brook Parkway.

## Evaluate the Potential to Accommodate Shared Mobility and Emerging Technology



We will use readily available data provided in a usable format through existing companies like LimeBikes, Uber, and Lyft, data for electric vehicle usage in Arlington, and best practices in planning for the future mobility to understand what is necessary for and what will encourage shared and future mobility that will reduce congestion and accomplish environmental sustainability goals. Arlington's multimodal network and trip patterns will inform a qualitative analysis of the Town's potential to accommodate a future Maas and CAVs framework, as described in Task 2.



**Provide an Inventory of Existing Programs and Policies Relevant to Sustainable Transportation**

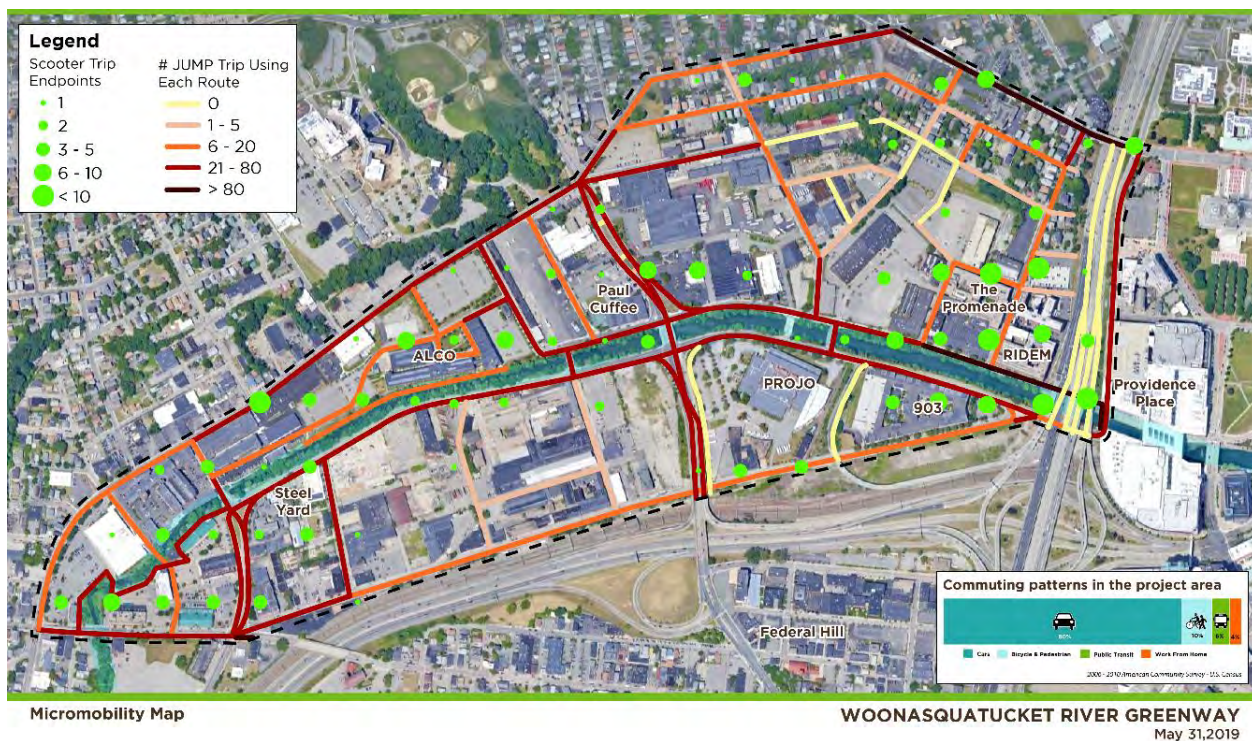


The McMahon Team will develop an inventory of relevant policies, processes, and regulations that influence and impact the Town's development and investment in its Complete Streets, bicycle, and pedestrian programs, curb use management, shared mobility, emerging technologies, and infrastructure to align with goals developed for the Climate Action Plan and Net Zero Action Plan.

**Develop Existing Conditions Map, Summary Tables, and Graphics**



A series of Town-wide maps will be developed to summarize the above data in graphical form. The exact format will be determined collaboratively with the Town and Advisory Committee, but is anticipated to include locations and condition of existing pedestrian, bicycle, and transit facilities; location of key sustainable mode trip generators including business districts, schools, major employers, and transit hubs; a graphical depiction of existing and projected demand for active and shared mobility transportation options.



**In Providence, Rhode Island McMahon mapped micro-mobility patterns for e-scooters and dockless bike share programs to identify priority corridors for improved bicycle and pedestrian facilities linking to the Woonasquatucket River Greenway.**



## Multimodal Access

GIS maps will be created to provide a complete picture of the existing multimodal transportation network and identify gaps based on travel demand and infrastructure deficiencies. The McMahon Team will focus on existing wayfinding and key decision-making points, general observations of traffic operations of all modes of traffic (vehicles, buses, pedestrians, bicycles) and a general inventory of physical features such as pedestrian, bicycle, and transit accommodations and their missing links. We will use available crash data to help identify network needs, particularly as they relate to safety for children and non-motorized modes. Regional connection points will be given special consideration, including the Minuteman Bikeway and Alewife Brook Greenway, major vehicular routes such as Route 2, Route 16, Route 2A, Route 3, and Route 60, and MBTA bus service that provides a first/last mile connection to regional transit centers like Alewife and surrounding commuter rail stations.

### Our Multimodal Approach to Connectivity

Pedestrian accessibility principles are an integral component of transit convenience. Integration of bicycle infrastructure at bus stops is also an important component of the *Rhode Island Bus Stop Design Guide*, and illustrates our multimodal approach to planning for connectivity. Thinking about how micro-mobility can seamlessly connect to the existing transit network is essential to expanding overall mobility and connectivity for these users.



**Floating Bus Stop typology as part of the *Rhode Island Bus Stop Design Guide* prepared by McMahon provides a separated bicycle lane that wraps behind the bus stop, improving safety for both modes.**

The identification of MBTA bus stop locations will enable us to address the “last mile” connections that help support transit as a sustainable form of everyday travel. ***With only approximately 7% of people in Arlington using public transportation as their main mode of transportation,<sup>1</sup> but 10 MBTA bus routes, there is ample opportunity to increase transit use in the future.*** Transit accessibility is not just about the bus service or bus stop itself, but the greater multimodal network that connects to the transit service. Incorporation of bus stop design elements, such as an accessible path of travel, curb cuts and crossings at stops, and how the bus stop is configured along the curb are essential components to expanding sustainable mobility options for walkers, bikers, and emerging micro-mobility options. A bus stop inventory along major

<sup>1</sup> 2019 Envision Arlington Town Survey

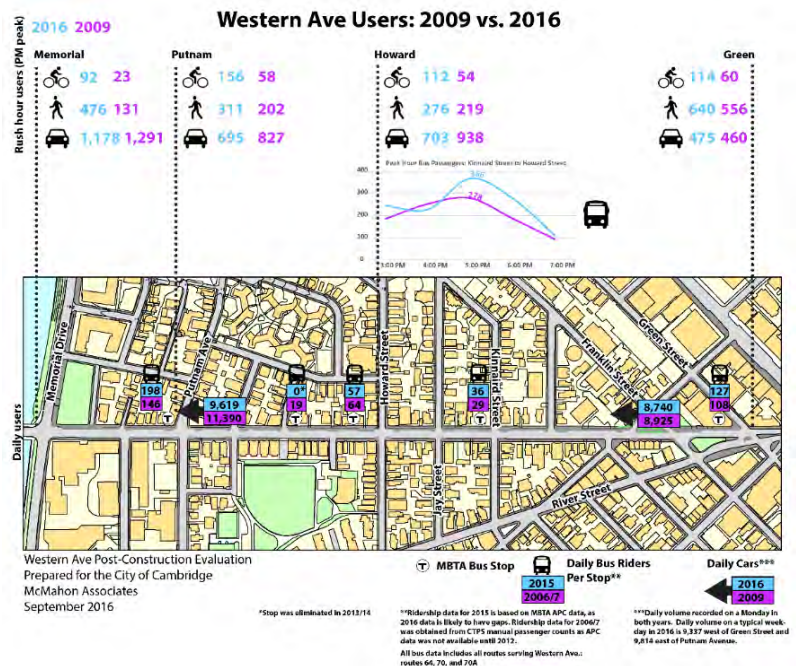
transportation routes and intersections, such as those with the Minuteman Bikeway, will inform bus stop improvements to increase sustainable mobility options in Arlington. The community engagement process through events and a Wikimap, described in Task 4, will help identify network gaps and areas where increased connectivity is desired.

The McMahon Team will develop an inventory of relevant policies, processes, and regulations that influence and impact the City's development and investment in existing sustainable modes of travel, future technologies and shared mobility options that have yet to be realized, as well as infrastructure to promote safety and connectivity. An essential aspect of multimodal access is the relationship between transportation, land use, and urban design. Policies for practices such as Complete Streets, access management, and parking management help knit multimodal connectivity with adjacent land uses.

In addition to improving connections between sustainable modes and bus stops, buses themselves provide an opportunity to move a greater number of people per vehicle more efficiently than traditional modes. McMahon is experienced analyzing MBTA bus data, including stop ridership and bus passenger loads, to understand the full impact of improving bus service for a community. We also understand that bus priority measures such as transit signal priority and queue jump lanes, when factored into a multimodal network, can increase the efficiency of buses and encourage more ridership.



The MBTA Roslindale Bus Lane, which is shared with bikes.



The Western Avenue post-construction analysis in Cambridge showed an increase in ridership at individual bus stops on Western Avenue, as well as increased passenger loads on the corridor. Some of this increase can be attributed to reconfigured bus stops that provide more passenger waiting space and amenities. Some of this increase.



## Task 2: Imagine



The McMahon Team will work with the Town of Arlington to assemble information and community input into a larger framework that integrates existing Town initiatives with a transformative vision for the future transportation system. This will help establish a mobility foundation for future growth and change, and transitioning every day trips into more environmentally sustainable modes. As part of developing a future vision, we will address concepts such as shared mobility, CAVs, MaaS, and dynamic curbside management to move towards the Town's goals for sustainability and equity.

**Vision to Meet Project Goals**

Reduce Vehicle Trips

Increase Active Transportation

Improve Safety & Access

Enhance Equity



**Establishing a Foundation for Future Sustainable Mobility**

The McMahon Team will work with the Town to assemble community input into a larger framework that integrates existing initiatives with an overall vision, as we have done in Cambridge and Providence.

### Sustainability

Encouraging sustainable travel in Arlington is an effective way to reduce Greenhouse Gas (GHG) emissions. Transportation mitigation strategies can provide benefits such as:

- Reduced congestion and improved air quality through emissions reductions.
- Sustainable transportation choices that are safe, affordable, efficient, and support public realm improvements.
- Reduced parking demand.
- Reduce commuting costs for residents.
- Good citizenship by encouraging people to choose alternative modes that are good for the environment and boost Arlington's image as a community advancing transportation choice.



Transportation trends related to sustainability often reference the concept of shared mobility CAVs. The concept of shared mobility is not a new concept, with public transit being the first shared mobility service; however, shared mobility is becoming more diverse and serving more trip purposes than public transit alone. Shared mobility as it exists today ranges from micro-mobility like scooters and bikes, to TNCs like Uber and Lyft, to the sharing of private vehicles through apps like GetAround. Shared micro-mobility options like LimeBike in Arlington do not increase vehicle trips, while TNCs and carsharing apps may increase them. The goal when looking to the future of shared mobility in Arlington is to understand how the Town can foster it while simultaneously reducing vehicle trips, and therefore congestion and emissions, and also improve the public realm for non-motorized transportation.

Another aspect of shared mobility is curb management using specific locations along the curb for different purposes during various times of day. Policies for curb management can be informed by several completed parking studies in Arlington. Existing parking utilization studies can be used to illustrate how demand for the curb fluctuates over the course of the day to inform using the curb during rush hour as a pick-up or drop-off point for shared vehicles (e.g., automated vehicles) or ridesourcing vehicles, and as a recreational public space during the rest of the day.

Shared mobility is also often implied in the context of future mobility services such as automated vehicles. The McMahon Team will help Arlington better understand what is necessary for and what will encourage shared and future mobility that will reduce congestion and accomplish environmental sustainability goals and rather than just assuming this will happen in the future.

We proposed analyzing implications and opportunities for CAVs and shared mobility in Arlington as part of a MaaS framework, described below.

### Mobility as a Service (MaaS)

We view the Plan as including emerging and technology-enabled mobility services and approaches including MaaS, mobility on demand (MOD) and CAVs. Carol Schweiger, a member of the McMahon Team, is an expert in MaaS and MOD, and will assess the possibilities of utilizing these and other approaches in Arlington. While MaaS is being deployed around the world in a variety of community types (city, suburb and rural areas), we do not have enough evidence that confirm MaaS's promise of reducing car ownership and congestion, increasing public transit ridership, and its sustainability from a financial perspective. MaaS is not simply an "app," but rather, it is a complex approach that consists of public-private partnerships, traditional (e.g., public

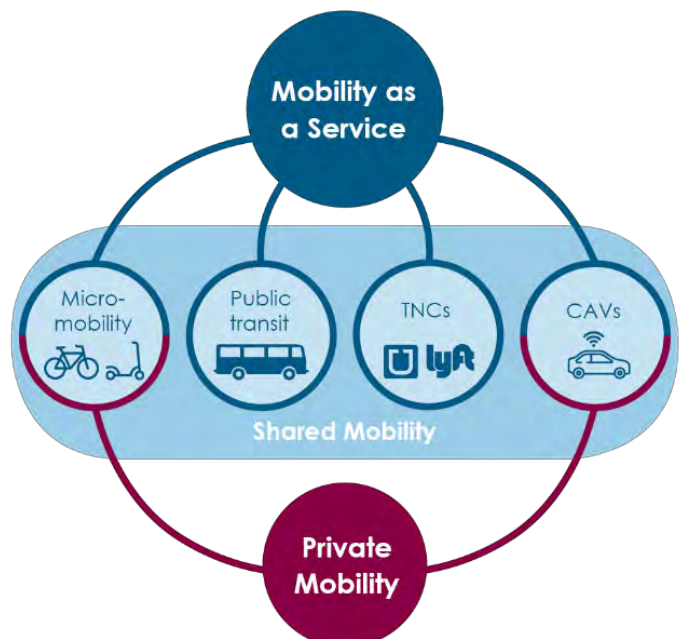
A variety of transportation mitigation strategies can help achieve Arlington's goal of reducing Greenhouse Gas (GHG) emissions including reductions in single occupancy vehicles (SOV) as a means of travel to, from and within Arlington.

1. Articulate Arlington's vision for a sustainable transportation system.
2. Outline how to best provide services to satisfy the transportation needs of the community while increasing low-carbon and carbon-free travel.
3. Evaluate estimated costs and funding options associated with the resulting transportation plan proposed through this effort.

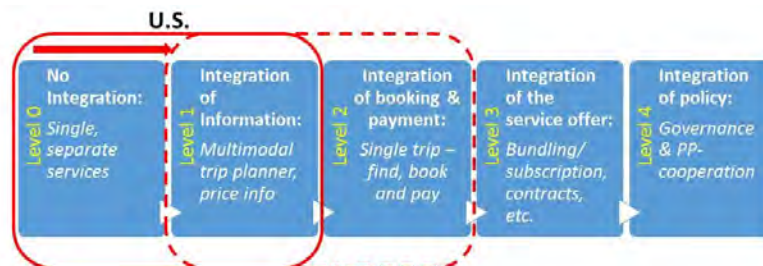


"Today, 30% of all US carbon emissions come from transportation."

U.S. Environmental Protection Agency (2017)



transit) and new mobility services (e.g., scooter sharing), and payment integration across mobility services (e.g., you pay only once for a trip consisting of multiple mobility services). The MaaS topology created in Sweden several years ago will facilitate the McMahon Team's consideration of MaaS as part of the Plan.



Source: Jana Sochor, Hans Arby and MariAnne Karlsson, "The topology of Mobility as a Service: A tool for understanding effects on business and society, user behavior, and technical requirements," Paper No. EU-SP1013, 2017 ITS World Congress, Montreal

The MaaS concept can take on a variety of forms depending on where it will be deployed. In Arlington, it may be envisioned a little differently than it was originally conceived in 2014. Carol Schweiger is very familiar with the most prominent examples of US deployments of MaaS and MOD, and will use those to inform the McMahon Team's effort in considering MaaS and MOD within the Sustainable Transportation Plan. Further, Ms. Schweiger is a member of SAE's JA3163 effort, which has developed a taxonomy of shared mobility, and is now participating in a small group of MaaS and MOD experts to expand the taxonomy to include these new mobility approaches. This effort will also help to inform the McMahon Team's effort in this aspect of the Plan development.

***With the focus of MaaS being primarily on customers, we will be asking, how can Arlington be sure that travelers will make mobility choices that meet Arlington's goals?***

- For example, someone may choose to drive alone to a destination rather than take public transit because it is faster. Driving alone may go against Arlington's sustainability goals (e.g., to reduce vehicle emissions).
- Further, is it Arlington's job to provide an environment in which the private sector can compete in offering either a mobility platform or mobility services, such as bikesharing? It has been suggested that this balance should be part of the eventual governance of MaaS, but there is not enough evidence to support this premise yet.

In considering a potential approach to MaaS in Arlington, Carol Schweiger will not only explore what transportation elements must be included in such a scheme, but she will also consider the delicate balance among the City of Arlington, travelers and the private sector if such a scheme will be employed. Ms. Schweiger has discussed this balance amongst a variety of international mobility experts, most recently at the 2019 ITS World Congress in Singapore October 21-25, 2019.



## Re-thinking the Curb in Cambridge, MA

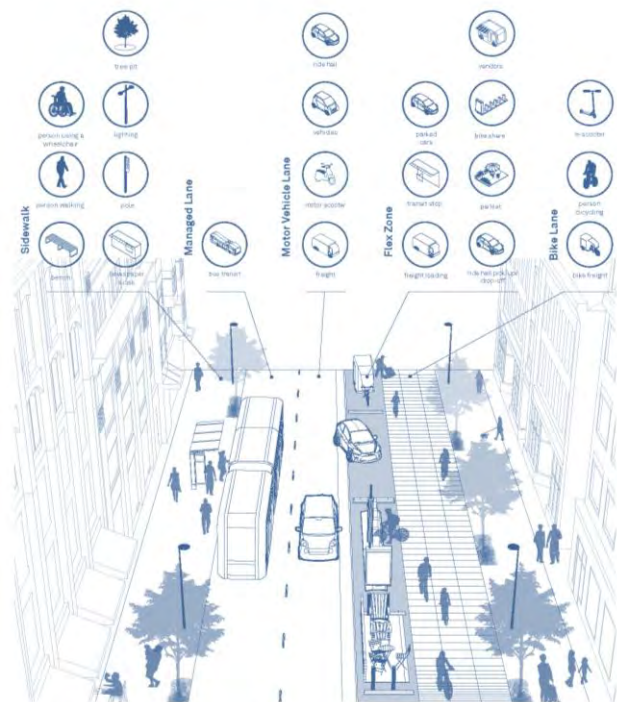
As part of the *River Street Reconstruction Project*, McMahon performed a curb use inventory to inform design options for creating a flex zone in place of existing on-street parking. Parking turnover and utilization studies showed that the majority of vehicles on River Street were parked for long periods of time, meaning the curbside was essentially serving as vehicle storage. A flex zone allows for a variety of curbside uses that can change based on time of day or real-time demand. For example, former parking spaces may allow for loading in the morning, a food truck at midday, TNC drop/off pick up in the evening, and resident parking overnight. This allows for a more equitable distribution of the curb to serve the needs of residents, visitors, and business owners.



## Many Demands on Curbside Space



## Zones of the Future Street



*NACTO Blueprint for Autonomous Urbanism,  
Second Edition*

McMahon also evaluated the use of curb space as part of the Inman Square Intersection Safety Improvement Project. The curb use inventory was used to evaluate design options with and without transit priority in the form of an AM peak hour bus lane on Cambridge Street. Graphics were generated to illustrate the public changes to the parking supply, as well as to show how a bus lane would enable the bus to bypass the vehicle queue, resulting in a faster travel time.



## Equity








The Plan must be responsive to the needs of all Arlington residents, employees, and visitors reflecting the town's diversity. This includes planning for people "8 to 80" of all ages and abilities, as well as considering the diversity of the built environment, from older neighborhoods laid out on compact and connected street grids, to suburban street patterns in the hillier northern sections of town. It will be important for people to realize the benefits of the Plan in terms of having an increase in sustainable transportation choices, as well as living with less emissions and air pollution from motor vehicles.



"8 80" planning believes that planning safe and comfortable facilities for an 8 year old and an 80 year old will result in safe and comfortable public spaces for everyone.

As explained in the Project Understanding, it is important to understand how people want to get to the places where they live, work, and play now, and what their options could be in the future. Multiple transportation options accommodated under design approaches such as Complete Streets, Universal Design, green streets, active transportation, and shared streets provide transportation choices to various people and help reduce automobile congestion and parking needs for those taking shorter trips. Additional benefits, particularly for persons who do not own automobiles or who do not/prefer not to drive, include improved air quality, improved public health for residents who become more active, more land available for developable uses instead of parking and equitable transportation access for everyone.

Considering para-transit opportunities will be important for Arlington's older population, low-income residents, or those with mobility limitations. Currently the Town is served by MBTA's The Ride paratransit system, but there may be unmet mobility needs. Through the visioning process we will examine unmet needs that surface in Task 1, and consider potential shared ride and flexible mobility options. By setting the framework for shared, flexible options, the number vehicle trips that currently serve these needs can be reduced, aligning with the Town's goals for reduced emissions and congestion.

KEY ELEMENTS OF PROPOSED BRTA SHARED-RIDE SERVICE	
	Operates outside of fixed-route service hours
	Uses existing BRTA paratransit vehicles
	Includes trips to/from locations in member communities
	Available to the general public
	Rides scheduled by calling BRTA by 5PM previous day
	Build partnerships with private employers
	Offer guaranteed ride home for emergencies

**McMahon assisted the Berkshire Regional Transit Authority with identifying opportunities for shared ride services due to unmet transportation to work needs. Using Human service transportation providers to provide additional service for work trips was recommended as part of the program.**

## Act



With a complete picture in hand of the Plan, the McMahon Team will identify potential near-term and long-term improvements for policies, programs, and physical changes to the public realm. This will include necessary repairs or improvements of roadways to accommodate active transportation; options to complete missing links in the bicycle network; alternatives for curbside management, ability to support improvements for first mile/last mile connections to transit; options for integrating shared mobility and MaaS; and the ability to expand future technology and electrification of the transportation network.

### Implement

One of the key measures of success of the Plan is to ensure that there is a clear action plan for implementation. The McMahon Team's reports and presentations are written in layman's terms and are populated with graphics designed to easily demonstrate the data summaries, highlight the unique aspects, and allow the audience to visualize the concepts being considered. Examples of our strategies are integrated throughout this proposal.

We arrange recommendations in terms of the time frame (immediate, short- and long-term), assign a responsible party, estimate a reasonable schedule to achieve the given recommendation, and offer suggestions on funding. We will work with the Town of Arlington to develop a format that best meets your needs. The information is commonly formulated in a matrix table, offering a checklist to use in the future when assessing what has been accomplished and what is yet to be accomplished. The McMahon Team will capitalize on our project experiences both planning and designing multimodal transportation improvements to identify implementation measures and key actions that can help the Town and its stakeholders prepare for the future now. **The implementation plan will result in clearly defined action items that can provide real-world recommendations to support Arlington's sustainable transportation goals.**

The goal of the implementation plan is to use sustainable transportation and emerging technologies to connect potential high transportation demand generators within the community, while creating a sense of place. It is important that design review procedures, standards and guidelines be developed with and fully understood by the area residents as well as the community policy makers. The Plan presents an opportunity to ensure all transportation options are safe, comfortable, and affordable. In doing this, the Plan is also a chance to improve the public realm and enhance Arlington as a destination to live, work, and play.







### Visualizing the Future

McMahon is working with the Town of Easthampton to create visualizations of proposed street improvements to help garner support for Improvements on Ferry Street (left) and worked with the Greater Portland Council of Governments to generate photo simulations of proposed interventions to improve bus stops (below).





## Planning for Uncertainty

Rethinking mobility to support the goals of the Plan also means addressing human decision-making patterns and the ability to change behavior. While the timeframe to develop the Plan is 12-months, the Plan will be a living document to carry Arlington into the future of transportation planning. The Vision established in Task 2 will provide a foundation upon which goals and policies can be based. Toward that end, the Plan must be flexible and adaptable to provide a framework for decision making to accommodate an unknown future.

Emerging, competing, and complimentary mobility options will change the transportation network for years to come. While technological improvements such as automobile and bus fleet conversion to completely connected and automated technology is not anticipated for several decades, anticipated technologies and associated infrastructure readiness, can be evaluated, planned for, and piloted in the short-term to ready the Town of Arlington for future implementation with an eye towards safety, equity, and environmental sustainability.

By developing an implementation plan that focuses on policies, programs, and physical change for both short-term and long-term, the Plan will serve the community by integrating prior and ongoing plans that support transportation in the community.

Planning for uncertainty is necessary when considering new mobility services. The following five trends must be considered in the Plan:

- The “complete trip” (identified by Ms. Schweiger for the US Department of Transportation project entitled “Multimodal and Accessible Travel Standards Assessment”);
- The value of the curb, and methods to dynamically allocate and price the curb;
- Inclusive and accessible mobility, particularly as transportation technology advances and more mobility services are available to travelers;
- Better understanding of changes in travel behavior as a result of new technology-driven mobility choices; and,
- The ongoing need for data sharing, which continues to be vital for mobility and tools that facilitate mobility.

*18 January 2019 online Issue of Intelligent Transport*

The recommendations that are developed will draw not only from national standards but also from innovative solutions and ideas and concerns generated from community meetings so that they provide the best practices and approaches for providing sustainable streets that are safe, accessible to everyone and that are exciting and attractive spaces through which people will move.

## Pathways to Change



### Policy

The McMahon Team will develop policy-based recommendations for modes of transportation that focus on changes to address land use, zoning, parking regulations, design standards, transportation demand management (TDM), MaaS, and future mobility measures. Policy recommendations will support both designing comfortable streets for people of all ages and abilities and emerging technologies for vehicles and curbside management.



### Program

The McMahon Team will identify programs that will incentivize shifts to sustainable modes in Arlington. It is important to note that a change in mode shift, even one day per week, is beneficial for the community, as the cumulative effects of the reduction in vehicle miles traveled accumulates over months and years, multiplied by the number of commuters who make an occasional change. The effect of the mode shift reflects on public safety improvements as the physical activity increases with the additional side effect of reducing GHG emissions.



### Physical Change

The McMahon Team will provide guidance for physical improvements focused on expanding transportation choices in Arlington. Expanding choices is about accommodating multiple groups of people with specific needs. Children may have an increased need for bicycle safety while older and disabled adults have a greater need for sidewalk accessibility. Many of these design principles are components of Complete Streets design, of which the McMahon team has expertise. Common features of Complete Streets include sidewalks, dedicated bicycle space (preferably with a physical separation from motor vehicles), enhanced pedestrian crossings, traffic calming features, and geometric improvements such as road diets and pedestrian bump outs. Other geometric changes could include transit stop improvements to increase ridership, as well as bike amenities to improve the last mile connection.

In addition, with our deep understanding of MassDOT, NACTO and AASHTO standards, the McMahon team will identify a range improvements and associated design parameters. Our team will customize and apply best practices from our prior experience on similar projects to save time and costs.



## Combining Policy and Physical Improvements

- *Safety improvements:* In conjunction with Town and public feedback, the McMahon Team will identify locations in need of safety improvements. The McMahon Team is aware of the HSIP pedestrian and bicyclists crash cluster corridors that exist along Massachusetts Avenue in downtown and in East Arlington. Depending on the type of crashes, the McMahon Team will select methods for improving safety for all road users, with an emphasis on pedestrian and bicycle users. When conflicts do exist, apply best practices to clearly identify the presence of cyclists, establish the priority and delineate paths. On roadways, provide designated travel ways for bicyclists such as bike lanes and cycle tracks, with an emphasis on separating the cyclists from the motor vehicles with physical barriers such as curbing or bike bollards. The McMahon Team will assist the Town to identify short term safety improvements that can be implemented systematically in the Town roadways that can have a high benefit with a low cost.
- *Accessibility improvements:* Our experience with the MBTA Bus Stop Accessibility program will allow us to quickly identify bus stops in need of accessibility improvements. Additionally, we can identify transit nodes that may warrant further stop improvement and enhanced amenities such as shelters, seating, bike parking, and real-time information to improve the user-experience and incentivize transit ridership.



## Strategic Interventions

The McMahon Team will examine two transportation nodes in closer detail to provide physical recommendations for the public realm. These could be areas where existing bus routes converge, like Massachusetts Avenue and Broadway, an area that may desire more connectivity like Arlington Heights, or a corridor that provides a connection to a transportation node in a neighboring community like Medford Street and the West Medford MBTA commuter rail station. The recommendations will be described in a conceptual nature, supplemented with photos of similar improvements in place at other locations. The potential improvement alternatives will be developed based on the vision established in Task 2 - Imagine in order to address the deficiencies identified in Task 1 - Assess.

### Neighborhood Applicability

Mass Ave. has been identified as a vulnerable road user corridor HSIP crash "cluster" for the 2007-2016 period; although this facility already has designated bike lanes. In addition, Mass Ave. is one of the east-west bike designated corridors in Arlington, in addition to the regional Minuteman Bikeway. As one of the potential transportation node analyses for a targeted improvement plan and potential pilot program, The McMahon Team could look into the feasibility of implementing bike infrastructure along Broadway to provide more commuting route options to reach destinations east of the town such as Somerville and Cambridge.



## CONNECTIVITY TO CONSIDER: NEW DEVELOPMENT



**McMahon provided examples of multimodal improvements to downtown Canton to demonstrate how community-wide policies and recommendations could be applied. This allowed residents and volunteer master plan committee members to increase their understanding of transportation concepts in an area that is well known to them.**

Near-term pilot project implementation will position the Town of Arlington for transportation improvements, while enabling the community to better understand local implications for land use and mobility. A wide range of mobility options, such as walking, cycling, shared mobility, and TNCs also have implications to the greater transportation network and require analysis and recommendations to ensure the implementation plan meets the Town's goals. Rapid implementation, low cost interventions will be identified for the focus nodes.

## Project Spotlight:

### City Walk, Providence, RI

As part of City Walk in Providence, McMahon worked with the project team and the City officials to identify an ideal location for a tactical urbanism event. This event allowed residents and roadway users to experience the project improvements during a short duration to obtain public buy in. The event involved local artists in the design of the ground murals and local families on the day of the event painting the ground murals. This demonstration project helped the project team to involve local residents and public officials to better visualize the proposed improvements.



## Project Spotlight:

### Neighborhood Slow Streets, Boston, MA

McMahon is working with the City of Boston on rapid implementation traffic calming tools to address specific neighborhood concerns for improving safety and slowing vehicular speeds. McMahon managed the design for the Mount Hope neighborhood, located approximately 1 mile south of the Forest Hills Station in Boston. Through coordination with the neighborhood and BTD, various traffic calming solutions have been proposed, including speed humps, contraflow bike lanes, curb extensions, and improved pavement markings and signage including bicycle wayfinding.

### Neighborhood Slow Streets Boston, MA

#### CHALLENGES AT CANTERBURY/MT HOPE/MT CALVARY

- Wide intersections
- Long pedestrian crossings
- Few signs and markings to help people navigate



#### OPTION 1: CIRCLE



#### OPTION 1: CIRCLE

Examples of treatments elsewhere:



Temporary curb extensions



Neighborhood-scale traffic circle

#### OPTION 2: SQUARE





## Monitor

The McMahon Team recognizes that this project is as much about community development as it is transportation. It is not simply a technical challenge, and will require a multi-faceted approach to evaluate potential strategies to achieve desired outcomes. **We will focus on implementable solutions that are technically feasible, best meet the needs of Arlington, and, equally important, have the support of the community and public agencies.**



The success of the Plan will be measured long after the scope of the contract ends. Therefore, including strategies for measuring the Plan's progress will be included in the implementation strategy. For example, tracking changes over time in mode share data through the U.S. Census data, increased membership in shared mobility options, and design of transportation improvements. The McMahon Team will establish linkages from the Plan to other relevant Town documents that define process, policy, process, and regulation.

Regarding shared mobility, several studies have identified relevant mobility performance measures in the past few years. One of the most recent studies conducted in Los Angeles "Measuring Transportation Happiness," identifies a "Mobility Bill of Rights" that provides performance metric categories as follows:

- Accessibility (Freedom to Get Around)
- Reliability (Freedom from Disruptions)
- Safety & Comfort (Freedom from Harm)
- Culture & Community (Freedom to Connect)
- Equity & Transparency (Freedom from Exclusion)

Within each category, key performance indicators are identified and will be considered by the McMahon Team for potential application as part of the Plan implementation.



## Task 4: Engage



The McMahon Team will work with the Town and the Sustainable Transportation Plan Advisory Committee (Advisory Committee) to develop an effective public engagement process. Few issues are as crucial to a project as initiating and maintaining meaningful public involvement throughout the life of a project. Our team believes that ***wide-spread public engagement to develop a vision is the key to long-term success*** in any planning effort. While this is listed as Task 4 in the Work Plan, the project schedule highlights that this task is integrated throughout the project duration.

The McMahon Team's approach to public engagement is to engage early and often. The team's public engagement strategy consists of the following elements, described in more detail in the text to follow:

- Work collaboratively with the Advisory Committee
- Develop a Public Participation Plan
  - Assist the Town with stakeholder communication by providing email content
  - Assist the Town by providing materials to be posted on the Town website and social media.
  - Create a public online Wikimap
  - Participate in two public engagement events

The McMahon Team, Town of Arlington, and Advisory Committee will work together to develop a Public Participation Plan implemented throughout the course of the project. We offer some engagement techniques as a starting point for discussion, and will work with you to refine the Public Participation Plan to serve as both the basis for the contract, and support successful project outcomes.

### Advisory Committee

The details of the format and content for the Advisory Committee meetings, and identification of potential meeting materials, will be determined in coordination with the Town. We envision the meetings to be held as workshops that would enable attendees to view information in detail, ask questions and raise comments on a more informal basis. Re-grouping with attendees and recapping on questions/comments received would likely enable more productive and effective meetings to progress the plan. It is understood by the McMahon Team that up to four (4) meetings will be held with the Advisory Committee at critical points along the development of the plan. We anticipate holding a project kick-off meeting with the Advisory Committee once the existing conditions review is underway to confirm goals, objectives, and vision to be achieved through this project. The remainder of the meeting topics will be determined in consultation with the Advisory Committee.

### We Routinely Prepare Transportation and Community Master Plans

Our team members routinely prepare transportation master plans for local, regional, and state governments, which include an active transportation element (pedestrian, bicycle, transit and often recreational trail elements). Community master plans prepared by McMahon coordinate the Client's future transportation systems and services with its future land use, zoning, housing, and economic development policies, and complies with funding requirements and regulations.



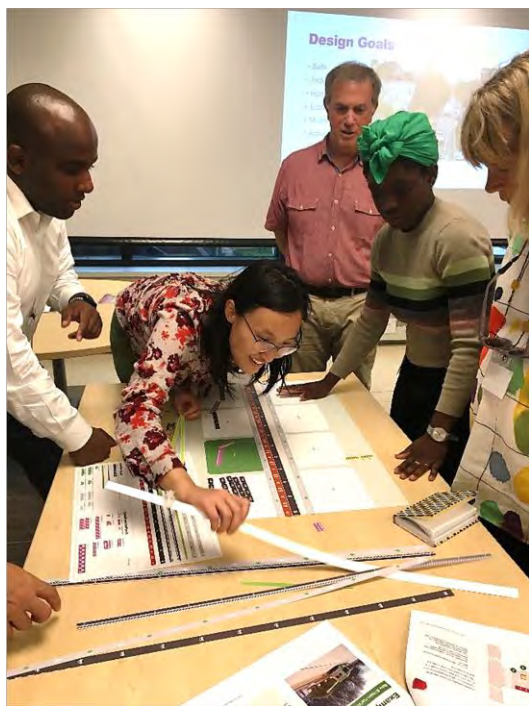
**McMahon works collaboratively in Canton to understand transportation and land use connections.**

## Public Participation Plan

The McMahon Team will undertake a nimble and multifaceted community engagement program based on the understanding that we must rely on a broad toolbox of tactics, and then customize our approach for each stakeholder audience. We will use creative approaches that tie into existing neighborhood activity, emphasizing interaction, innovation, and fun. We will provide tools for the Advisory Committee through the development of a Public Participation Plan to use with the public to engage a diverse cross-section of Arlington's residents, workers, and visitors. Central components to outreach will include up to two (2) public engagement events at key project milestones, an online input Wikimap, "meeting in a box" and pop-up event materials for the Advisory Committee to conduct outreach, and materials for consistent communications via the Town's existing online platforms.

### Project Spotlight: River Street Reconstruction, Cambridge

McMahon facilitated a mobility game for members of the River Street working group in Cambridge, MA. Each group was given a corridor with a fixed right-of-way and game pieces representing mobility elements such as a travel lane, bus lane, bicycle facilities, sidewalk, curb extension, and green infrastructure elements to design their ideal corridor. The game was used to illustrate the necessary trade-offs in planning to accommodate different users.



### Meeting Design

We will work with you to develop appropriate meeting design to support each step of the project.



### Logistics of Engagement

Successful public engagement is a partnership between Town staff and the consultant team.



### Online Wikimap

The project schedule proposes to launch the Wikimap as part of the pre-meeting outreach process in February. Availability of the Wikimap will be promoted during the public engagement events and Advisory Committee outreach as an additional tool for input.



### Public Participation Plan



A Public Participation Plan developed with the Advisory Committee will outline the outreach plan and communication protocols for the duration of the project. The PPP will document the expectations for Advisory Committee meetings, public engagement events, online engagement and online communications. As part of the PPP we can develop an elevator speech and project fact sheet to help Advisory Committee members generate interest in and engagement with the project amongst the greater community.



### Online Wikimap



Wikimaps, which are interactive online maps designed to solicit public input, have become an integral part of public engagement for planning projects. Anyone with an internet connection can add to the public conversation, even if they cannot attend a public meeting.

The Wikimap interactive tool will allow us to collect location-based information on issues and opportunities for sustainable transportation in Arlington. This input will help us prioritize which streets should be the focus of safety improvements, the corridors with the most opportunity for future mobility services, what trips might be served by new bus priority measures, which corridors should be investigated as part of the Complete Streets Policy, which intersections have features that serve as barriers to non-motorized transportation, as well as where first mile/last mile connections to neighboring commuter rail and subway stations are most desired.

When it's time to analyze the information we've gathered, Wikimap makes it simple to export the data to GIS-ready shapefiles, or to KML data for viewing on Google Earth. This will allow us to create maps for public consumption as well as a database for statistical analysis. McMahon recently assisted the City of Cambridge in developing a prioritization matrix of bus improvements to present to the MBTA, based on input, in part, from a Wikimap. In place of a Wikimap the McMahon Team can also develop a traditional online survey if that is determined to better fit the project needs through consultation with the Advisory Committee.



### Public Engagement Event #1



The McMahon Team will work with the Advisory Committee to develop meetings tailored to the public. In general, meetings will be designed to be interactive in nature and could include a galley-style open house component, as well as a session that is a guided facilitation exercise.

Exercises will be designed to answer the following questions:

- What are the mobility needs in your neighborhood?
- What infrastructure for sustainable modes do you have and how is it serving the needs of the neighborhood?
- Which groups have the most urgent needs (e.g., school kids, older folks, etc.)?
- What types of strategies do you think would be most effective?

The final question is typically the most challenging for participants as they generally aren't trained in the latest engineered techniques related to transportation planning. Our team will provide visualizations and posters that show different design approaches to dedicated to active transportation, shared mobility, and emerging technologies to help participants think through the tradeoffs associated with different practices as well as the practical considerations around implementation (e.g., street geometry, cost, etc.).

Rather than a traditional public meeting, the first public engagement event may be held in conjunction with an existing Town or community event, or as a series of pop-up events or focus groups to understand specific stakeholder concerns and desires. The final format and timeframe will be developed in consultation with the Advisory Committee.





### Meeting in Box & Pop Up Events



The McMahon Team understands the importance of meeting people where they are and integrating outreach efforts with the existing community. We will work with the Advisory Committee to utilize existing resources such as schools and community groups to involve the local community in public engagement efforts and partner with local groups to help lead pop-up events and neighborhood focus groups.

The McMahon Team will provide the Advisory Committee with a “Meeting in a Box” to conduct pop-up events, focus groups, and other meetings as needed independently. “Meeting in a box” materials may be a project fact sheet and survey cards to make them easy and efficiency ways to increase awareness and collect input on the project.

We envision pop-up events to take place in activity centers, such as the Robbins Library, Arlington’s Visitors Center or Arlington Senior Center. Neighborhood focus groups may target neighborhood residents, local and regional businesses and major employers. A neighborhood focus group could also include an activity, such as a bike ride on the Minuteman Bikeway to build a sense of community. Both focus groups and pop-up events allow us to target the audience for issues like parking and loading needs in commercial areas, opportunities for new bus priority measures, or pedestrian and bicycle network gaps.



### Public Engagement Event #2



The second public engagement event will be a workshop to review of strategies for meeting project goals. We anticipate presenting strategies using a toolbox approach to provide an understanding of how, when, and for what purpose different mobility tools for increasing sustainability can be used. The strategies will include policies, programs, and physical improvements as described in Task 3. The toolbox approach also allows for us to highlight the cost, ease of implementation, and maintenance concerns with each strategy, closely tying strategies to a phased implementation plan. The input from this workshop will be used to complete the Final Plan, including the Implementation Program.



### Existing Online Platforms



The most effective use of limited resources will be attained by integrating the public engagement process with the policies, procedures, and outreach mechanisms that are regularly used in the Town of Arlington. Toward that end, we assume the Town of Arlington will lead the following:

- Arrange meeting locations, advertise and host the public engagement events, and include provisions for translation and accessibility requests.
- Complete pre-meeting outreach and make use of existing available channels, such as mailing lists, email distribution lists, social media accounts, and webpages, for contacting community stakeholders.
- Develop and host a project webpage linked to the Town of Arlington website to promote the Plan, meeting information, and a link to an online Wikimap.

The McMahon Team will help support the development of the content for webpages updates, emails, and social media. We will provide technical information in clear and concise language and in a user-friendly format. Our approach will emphasize transparency and communication between the project team, Town, and Advisory Committee. We will work with the Town resources to provide translation services as appropriate.

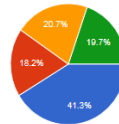
## Using Public Input to Shape the Future

The McMahon Team has conducted public surveys for prominent transportation master plans. The public survey for the Waltham Transportation Plan consisted of:

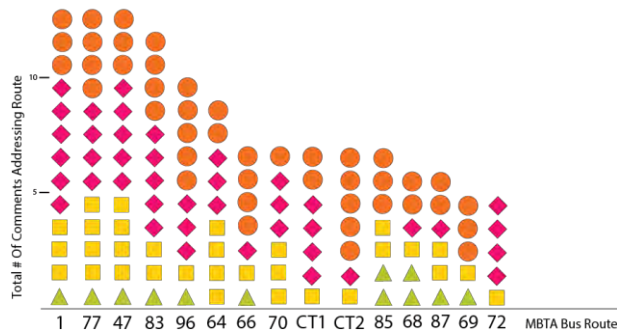
- A month-long survey that generated 3,400 responses.
- The majority of survey respondents worked in Waltham, followed by a large percentage of residents, and a small percentage of students, indicating that the survey was reflective of both commuters and residents.
- The survey was advertised via the City website, announcements at public meetings, and through the City's social media accounts.
- The survey covered all modes of transportation and helped to prioritize transportation issues.
- The survey was instrumental during the development of improvements, having identified the highly desirable types of improvements.

McMahon conducted a public survey for the Waltham Transportation Master Plan (WTMP) in which we were able to draw the community's input on current issues and preferences for improvement strategies. The public survey results helped to shape the WTMP, especially as we developed concept improvements. By understanding the community's preference for types of improvements, we could streamline the concept development stage of the project, and avoid iterations of improvement scenarios that were not favored by the users. Furthermore, the survey reached both commuters and residents, allowing us to gain greater perspective on the transportation issues and desires.

23. What is your level of comfort or confidence as a bicyclist?



I don't ride and have no plans to start	944	41.3%
Less confident - I only feel safe on separated paths (with few street crossings) and local streets	417	18.2%
Casual - I prefer separated paths but will ride on roads where space is available and with light traffic	473	20.7%
Experienced - I am confident and comfortable riding, with traffic, on the road, in most situations	451	19.7%



▲Connections ■Schedule ◆Routing ●Bus Stops

As part of the City of Cambridge's Better Bus Outreach Initiative, McMahon summarized public input from a Wikimap into the four major themes identified for bus service improvements. All of the public comments generated through the public engagement process were categorized and informed the prioritization of bus improvement ideas recommended for advancement by the City of Cambridge.

### Final Deliverables:

A draft Plan will be prepared in electronic format and submitted to the Town for review and comment by the Town. The Town will review the findings and provide McMahon Team with a combined set of questions, requested edits, and other comments for incorporation into the final Sustainable Transportation Plan. The final Plan will be submitted in electronic format, suitable for posting on the Town website, as well as two hard copies.



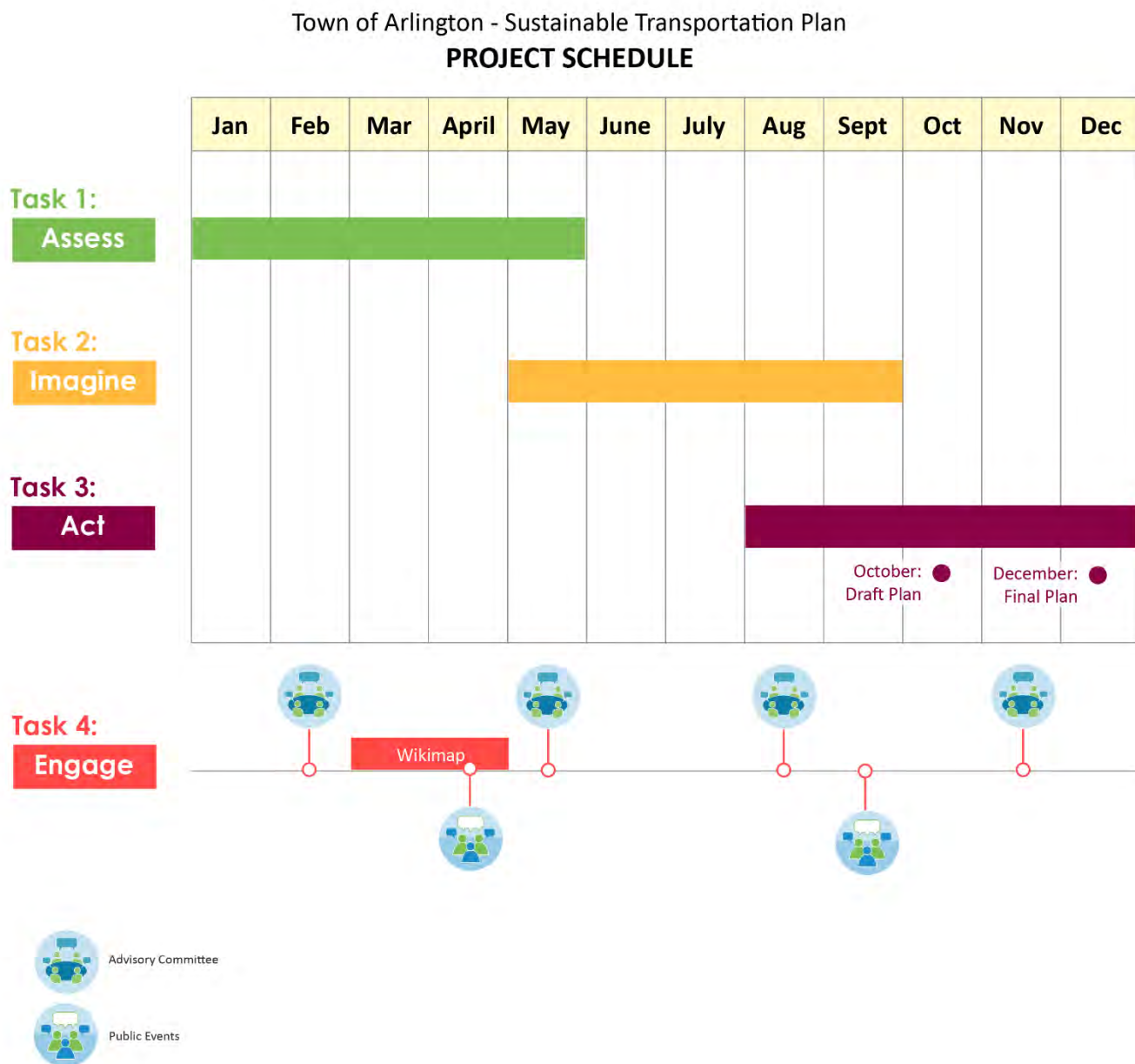
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Schedule

## Schedule

The McMahon team proposes the following schedule to meet the project timeframe of approximately 12 months, and assumes a January 2020 start date as noted in the RFP. We will work with the Town to modify the schedule, as needed, to meet the needs of the project.





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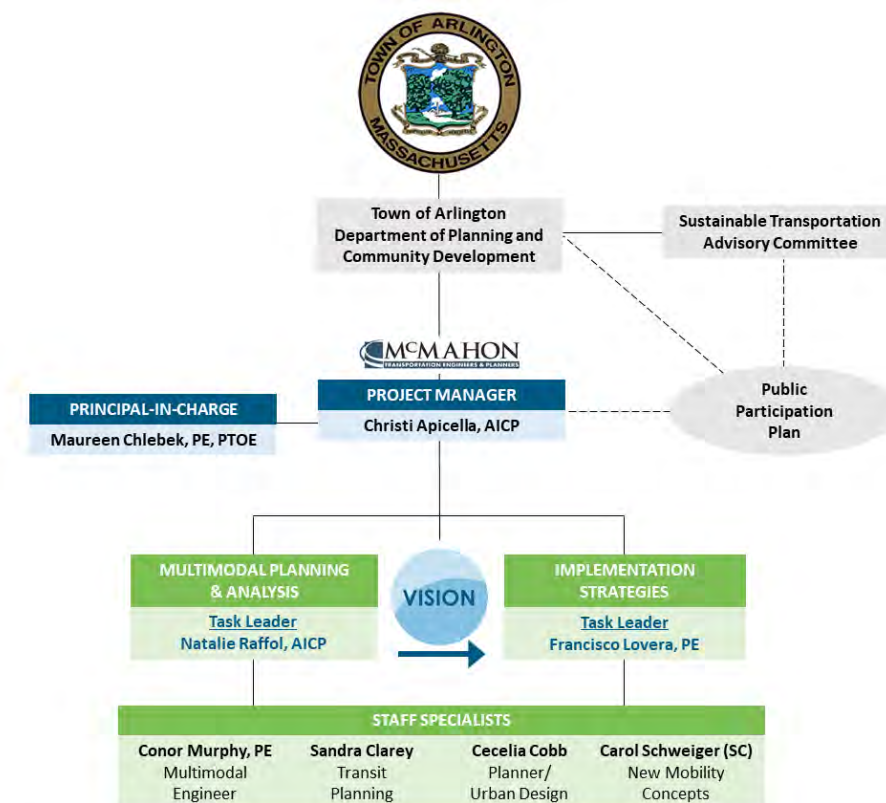


# Resumes



## Project Team

McMahon has assembled a specialized project team to meet the needs of the Town of Arlington. Our organizational chart shown below illustrates our chain of responsibility and proposed approach to staffing the various components of this plan. Our availability chart is below the organizational chart, and we have provided bios of our management staff and Task Leaders on the following pages. **All resumes are also included at the end of this section.**



Prime Consultant: [McMahon Associates](#)  
 Subconsultant: [Schweiger Consulting LLC](#) = SC

## Availability Chart

The McMahon Team has the necessary capacity for this project. We have identified the key staff to provide the required services, and each is immediately available for this project upon Notice to Proceed. The chart below provides an estimation of time that each person is generally available to the Town or Arlington for this project.

Name	Project Role	% Commitment to Other Projects	% Availability to Town of Arlington
Christy Apicella	Project Manager	75%	25%
Maureen Chlebek	Principal-in-Charge	90%	10%
Natalie Raffol	Task Leader, Multimodal Planning & Analysis	65%	35%
Francisco Lovera	Task Leader, Implementation Strategies	65%	35%
Conor Murphy	Multimodal Engineer	75%	25%
Sandra Clarey	Transit Planning	80%	20%
Cecelia Cobb	Planner/Urban Design	65%	35%
Carol Schweiger	New Mobility Concepts	70%	30%



## Bios of Key Staff

### Christi Apicella, AICP

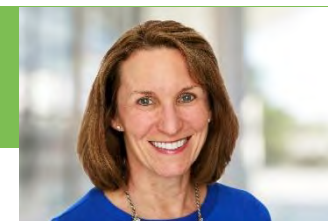
Project Role: Project Manager



Christi's expertise includes multimodal transportation plans; transportation demand management; parking analyses; and public engagement. As a senior transportation planner, Christi has a passion for developing transportation solutions that create more vibrant, livable communities, such as her work on many multimodal projects in the City of Cambridge. She is currently serving as Community Outreach Lead and Lead Transportation Planner for the **River Street Reconstruction Project**, a multimodal transportation analysis for the roadway redesign with an eye toward the future planning for Central Square. For the **Grand Junction Multi-use Path project**, Christi is Community Outreach Lead and McMahon's internal project manager to deliver the public engagement plan, and design of trail crossings, including state of the art bicycle and pedestrian signals to facilitate safe crossings of arterial roadways. In addition, Christi served as the Lead Transportation Planner for the **Inman Square Intersection Safety Improvement Project**, which includes development of alternatives with public input creating multimodal safety improvements, separated bicycle lanes and bus stop design improvements. Her visioning and strategic nature to transportation planning provides a clear understanding to stakeholders and the public on how to bring their goals to a reality. She has led the transportation efforts of multimodal and safety projects in urban environments, incorporating effective public involvement techniques. While previously employed by the **Medical Academic and Scientific Community Organization, Inc. (MASCO)**, Christi was responsible for supervising the **CommuteWorks Transportation Management Association (TMA)**, which included providing transportation demand management (TDM) assistance to over 40,000 employees to reduce commuting by single-occupancy vehicle.

### Maureen Chlebek, P.E., PTOE

Project Role: Principal-in-Charge



Maureen Chlebek, P.E., PTOE is Vice President and Regional Manager in New England. She has over 34 years of transportation engineering management experience. She has managed numerous projects for state, municipal and private clients. Her duties have included performing transportation planning and traffic analyses for multimodal corridor studies, circulation studies, signalization projects, parking studies, impact studies, traffic calming, transit studies, peer reviews, QA/QC responsibilities, and municipal master plans. Maureen's traffic analyses experience has included estimating existing and projected traffic volumes, capacity analyses, crash studies, traffic signal warrant analyses, and the planning, design, and evaluation of traffic controls, roadway features, pedestrian and bicycle amenities, construction staging, and traffic management. In addition, she has developed and managed proposed improvement plans, including multimodal roadway and signal designs, construction staging, and prepared environmental assessments and evaluations to quantify the socio-economic and environmental impacts of the project alternatives. Maureen has served as Project Manager for numerous projects, such as the **Waltham Transportation Master Plan** and the **Town of Falmouth, Route 28/Main Street Transportation Master Plan**. She is currently Associate-in-Charge for the **City Walk Bicycle & Pedestrian Improvement Project** in Providence, RI.

## Natalie Raffol, AICP

Project Role: Task Leader, Multimodal Planning & Analysis

Natalie is a Senior Project Transportation Planner in McMahon's Boston office. She has six years of experience and has been involved in a wide range of transportation planning projects with a multimodal perspective. Her work involves developing transportation master plans and corridor studies, conducting transit analysis, performing parking studies, evaluating transportation demand management strategies, and leading community engagement exercises. She is skilled with GIS and Adobe Illustrator, and uses them to create reports, graphics, and presentations to convey technical information to public audiences. Her approach to transportation projects is collaborative, technical, and communications-oriented. Natalie has been involved in many multimodal projects in Cambridge. She is currently Transportation Planner of the **River Street Reconstruction Project** in Cambridge responsible for community engagement and multimodal transportation analysis to inform the reconstruction of River Street, including a parking utilization study and curbside inventory and transit analysis on River Street and through the Central Square busway. She served as Transportation Planner for the **Inman Square Intersection Safety Improvement Project** responsible for evaluating transit, parking, and loading impacts for design alternatives as part of the Inman Square redesign to meet safety goals of Cambridge's Vision Zero Action Plan. She is also Transportation Planner for the **BTD On-Call Traffic Calming Planning & Design** project responsible for developing graphics and presentation materials to document existing safety issues in the neighborhood and alternative design solutions.



## Francisco Lovera, P.E.

Project Role: Task Leader, Implementation Strategies

Francisco has over 14 years of transportation engineering experience specializing in traffic engineering and highway safety. He has significant experience leading public presentations and outreach on a variety of topics, including roundabouts, pedestrian hybrid beacons (HAWK), pedestrian signal timings, and highway safety awareness. He has been responsible for coordinating roadway traffic monitoring during major construction projects. Prior to joining McMahon, Francisco served as Chief Civil Engineer at the Traffic Engineering Section with the Rhode Island Department of Transportation (RIDOT), where he managed traffic engineering projects and served as traffic engineer for highway and bridge projects. He was also responsible for managing the state's Highway Safety Programs (NHTSA). Currently, Francisco is serving as Traffic Engineer for the **RIDOT, On-Call State Traffic Design Consultant Services**; as Senior Traffic Engineer for the **On-Call State Traffic Commission Traffic Studies Consultant Services**; and as McMahon's Project Manager for the **City Walk Bicycle and Pedestrian Improvement Project** in Providence, RI.



## Carol Schweiger

Project Role: New Mobility Concepts

Carol Schweiger is President of Schweiger Consulting LLC and has 40 years of transportation consulting experience, and is nationally and internationally recognized in the area of Intelligent Transportation Systems (ITS) and Advanced Public Transportation Systems (APTS). She provides detailed technical assistance in the areas of technology planning, procurement, implementation, evaluation, research and training, including the specialty areas of systems engineering, technology strategy development and the application of new mobility concepts (e.g., Mobility as a Service), to community transportation, paratransit and transit agencies, and state departments of transportation (DOTs) that are deploying ITS technologies, and to the USDOT and TRB.



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## Resumes



## CHRISTI APICELLA, AICP

**Project Role:** Project Manager

Christi has a passion for developing transportation solutions that create more vibrant, livable communities. Her expertise includes multimodal transportation plans; transportation demand management; parking analyses; and public engagement. Christi's visioning and strategic nature to transportation planning provides a clear understanding to stakeholders and the public on how to bring their goals to a reality. She has led the transportation efforts of multimodal and safety projects in urban environments, incorporating effective public involvement techniques.

### EDUCATION

Master of Urban Planning, University of Michigan, 1996

B.A., Geography, University of Arizona, 1994

### PROFESSIONAL REGISTRATIONS

American Institute of Certified Planners (#105073)

### PROFESSIONAL AFFILIATIONS

American Planning Association

APA – MA Chapter Board of Directors, Southeast Region Representative

American Institute of Certified Planners (AICP), Member

Trainer, APA-MA AICP Exam Preparation Course

Franklin (MA) Downtown Partnership, Member

Town of Franklin, MA 2013 Master Plan Committee, Member

**Years of Experience:** 21

**Years with McMahon:** 9

## PROJECT EXPERIENCE

### City of Waltham, Transportation Master Plan, Waltham, MA

**Senior Planner:** As part of a city-wide transportation master plan, led the evaluation of parking supply and utilization trends for the downtown Moody Street area. Evaluated parking demand in the context of the restaurant intensive downtown, as well as commuter rail parking, and residential on- and off-street parking. Worked with city staff to design a municipal-led data collection effort. Developed a parking management plan to meet both existing and future demand by prioritizing prime on-street spaces for turnover for customers, while shifting longer term parking to underutilized parking areas.

### City of Cambridge, River Street Reconstruction, Cambridge, MA

**Community Outreach Lead and Lead Transportation Planner:** Working collaboratively with the City to develop and execute a public engagement plan consisting of a core client group, City-manager appointed Working Group, and broad public involvement through a variety of tools and techniques. Serving as McMahon's internal project manager as part of a multidisciplinary team to lead the multimodal transportation analysis to inform the reconstruction of River Street. The community engagement and transportation analysis of the roadway redesign also involves modification of Carl Barron plaza and MBTA bus hub with an eye toward the future planning for Central Square.

### City of Cambridge, Grand Junction Multi-Use Path and Concept Design, Cambridge, MA

**Community Outreach Lead:** Part of a multi-disciplinary team responsible for assisting the City of Cambridge to support the city's goals with regard to active transportation, complete streets, vision zero, and neighborhood context to develop the Grand Junction Multi-Use Path. The project will provide improved connections to other multi-use paths in the region and preserve the opportunity for future two-track rail transit service along the Grand Junction right-of-way. Responsible for developing and implementing the public engagement plan with City staff and the project team to design a multi-use path that will benefit stakeholders, while ensuring that its construction will not preclude two-track transit service along the project corridor. Leading the

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## CHRISTI APICELLA

preparation of materials and presentations to a city-appointed Working Group, and facilitating an intensive stakeholder, agency and abutter coordination strategy. Serves as McMahon's internal project manager to deliver the public engagement plan, and design of trail crossings, including state of the art bicycle and pedestrian signals to facilitate safe crossings of arterial roadways.

### **City of Cambridge, Inman Square Intersection Safety Improvement Project, Cambridge, MA**

**Lead Transportation Planner:** Serving as McMahon's internal project manager as part of a multi-disciplinary team to lead the transportation analysis and redesign of a complex intersection in a vibrant commercial and residential center. Led the alternatives development process and public input process for multimodal safety improvements, separated bicycle lanes, and bus stop design. Transportation team leader for the entirety of the project from initial visioning and alternatives development, to preliminary and final design plans, and assisting with bidding for construction for this high profile, expedited project as part of Cambridge's Vision Zero Action Plan.

### **Boston Transportation Department, On-Call Traffic Calming Planning and Design, Boston, MA**

**Lead Transportation Planner:** Part of a team that is responsible for working with the City of Boston for a 3-year, on-call contract to identify, design and rapidly implement traffic calming measures in neighborhoods throughout Boston. Speed humps, mini-roundabouts, curb extensions, pavement marking and signage upgrades are some of the expected upgrades to be installed throughout the City of Boston. Public outreach with the specific community members will occur throughout the project to ensure the design meets the wants and needs of each local community.

### **City of Providence, City Walk Bicycle and Pedestrian Improvement Project, Providence, RI**

**Transportation Planner:** Part of the lead team to determine physical improvements along Broad Street, Pine Street, Friendship Street and Clifford Street to provide bicycle and pedestrian connections from Roger Williams Park to Point Street Park through downtown. The scope includes public outreach in English, and Spanish, traffic data collection, traffic and crash analysis, public art, green infrastructure, and concept and final design of a bicycle and pedestrian facility within the project limits. This project will build on the efforts performed by the City of Providence in the last few months to enhance the quality of life along Broad Street, while preserving and highlighting the cultural diversity within this section of the City with the ultimate goal to connect neighborhoods.

### **RI Department of Administration (RIDOA), Capitol Hill Parking Study, Providence, RI**

**Lead Transportation Planner:** Served as McMahon's internal project manager for a parking analysis and transportation demand management (TDM) plan for the Rhode Island Capitol Hill area. Led the coordination of data collection and analysis of parking supply and utilization. Developed a TDM plan as a key recommendation of the study to reduce parking demand by offering benefits and incentives for state employees to use alternative commutes.





## MAUREEN CHLEBEK, P.E., PTOE

Project Role: Principal-in-Charge

Maureen has over 34 years of transportation engineering experience. She has managed numerous projects for state, municipal and private clients. Her duties have included performing transportation planning and traffic analyses for multimodal corridor studies, circulation studies, signalization projects, parking studies, impact studies, traffic calming, transit studies, and municipal master plans. Maureen's traffic analyses experience has included estimating existing and projected traffic volumes, capacity analyses, crash studies, traffic signal warrant analyses, and the planning, design, and the evaluation of traffic controls, roadway features, pedestrian and bicycle amenities, construction staging, and traffic management. In addition, she has developed and managed proposed improvement plans, including multimodal roadway and signal designs, construction staging, and prepared environmental assessments and evaluations to quantify the socio-economic and environmental impacts of the project alternatives.

### EDUCATION

B.S., Civil Engineering, University of Rhode Island, 1984

### PROFESSIONAL REGISTRATIONS

Professional Engineer – MA (#47735),  
RI (#5514), CT (#30858)

Professional Traffic Operations Engineer

### PROFESSIONAL AFFILIATIONS

Institute of Transportation Engineers,  
Member

Women's Transportation Seminar (WTS)  
– Rhode Island, Member

Women's Transportation Seminar (WTS)  
– Boston, Member

ACEC-RI, QBS Committee Chair

Tau Beta Pi Engineering Honor Society,  
Member

**Years of Experience:** 34

**Years with McMahon:** 11

## PROJECT EXPERIENCE

### City of Waltham, Waltham Transportation Master Plan (WTMP), Waltham, MA

**Project Manager:** Responsible for the development of the WTMP in its entirety, which included an assessment of existing conditions, future year projections, identifying deficiencies and development of a 10-year action plan. The components of the WTMP included traffic analysis, safety analysis, public transportation, parking, demographics, and land use development. The WTMP is multimodal and visionary. Initially, 91 intersections were studied from a traffic operations and safety perspective. The 10-year action plan included short- and long-term recommendations for each mode of transportation and parking, as well as specific improvements at prioritized locations including five corridors and 20 intersections. The WTMP included a parking study for downtown and transit evaluations and recommendations. Led a robust stakeholder coordination/public outreach effort, including a public online survey, public meetings, and meetings with city officials, developers, institutions, and agencies. The public meetings were conducted in both a workshop format and a formal presentation format.

### Town of Falmouth, Route 28/Main Street Transportation Master Plan, Falmouth, MA

**Project Manager:** Responsible for managing the Falmouth Transportation Master Plan. The project involves five tasks including an assessment of the existing transportation conditions, the identification of transportation safety and operational issues, development of improvements, stakeholder coordination and the preparation of the transportation master plan report. McMahon has assessed existing conditions, including volume data, parking information, wayfinding signage, multimodal transportation infrastructure,

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## MAUREEN CHLEBEK

traffic growth trends, crash data and public transportation options. The transportation issues identified are reflective of capacity analysis results, mode allocation, roadway geometry, parking policies and infrastructure, missing links in terms of pedestrian and bicycle amenities and wayfinding signage. Short and long-term improvements were identified and conceptual designs prepared for ten specific locations. Stakeholder coordination was achieved thru a series of progress meetings, agency coordination, and public meetings.

### **City of Providence, City Walk Bicycle and Pedestrian Improvement Project, Providence, RI**

**Associate-in-Charge:** City Walk is a community developed planning vision for the City of Providence with the ultimate goal to provide connection between its different neighborhoods enhancing the infrastructure that allows pedestrians and bicyclists to travel within the City. The scope includes public outreach in English, Spanish and Khmer, traffic data collection, traffic and crash analysis, public art, green infrastructure and concept and final design of a bicycle and pedestrian facility within the project limits. This project will build on the efforts performed by the City of Providence in the last few months to enhance the quality of life along Broad Street while preserving and highlighting the cultural diversity within this section of the City.

### **MassDOT, Route 107 Corridor Study, Salem and Lynn, MA**

**Project Manager:** Responsible for managing a study to evaluate operational and geometric improvements to address existing issues with delays, queuing, traffic signal design and lack of pedestrian and bicycle facilities, as well as mitigate potential future impacts from new retail development along a 3-mile segment of Route 107 in Salem and Lynn. The corridor includes ten signalized intersections and serves commuters, as well as adjacent commercial development. A plan for future multimodal transportation improvements (short-, medium-, and long-term), based on an alternatives analysis, was the end product of this project. The plan was developed in coordination with an established working group.

### **RIDOT, Safe Routes to School Traffic Design Consultant Services, Statewide, RI**

**Project Manager:** Responsible for managing on-call engineering, planning, and design services contract for the Rhode Island Safe Routes to School (SRTS) program's infrastructure improvements. The project includes infrastructure improvements at six Rhode Island schools. The project involves outreach with town and school representatives, evaluation of the existing conditions and traffic control devices, development of "Choose Your Route to School" maps, pick-up/drop-off observations and recommendations, preparation of a Design Study Report, and preliminary and final design plans. Improvements are geared toward pedestrian and bicycle modes and include sidewalk installation, traffic control improvements, signs and pavement markings, crosswalks, and speed humps.



## NATALIE RAFFOL, AICP

**Project Role:** Task Leader, Multimodal Planning & Analysis

Natalie has been involved in a wide range of transportation planning projects with a multimodal perspective. Her work involves developing transportation master plans and corridor studies, conducting transit analysis, performing parking studies, and evaluating transportation demand management strategies. She is skilled with GIS and Adobe Illustrator, and uses them to create reports, graphics, and presentations to convey technical information to public audiences. Her approach to transportation projects is collaborative, technical, and communications-oriented. Natalie's prior experience is with the Boston Region Metropolitan Planning Organization (MPO) where she assisted in managing and expanding public outreach strategies.

### EDUCATION

Master of Urban and Environmental Planning, University of Virginia, 2014

B.A., Political Science, Boston College, 2010

### PROFESSIONAL REGISTRATIONS

American Institute of Certified Planners (#29533)

### PROFESSIONAL AFFILIATIONS

Young Professionals in Transportation (YPT) – Boston

American Planning Association, Member

Massachusetts Association of Planning Directors (MAPD), Member

American Institute of Certified Planners, Member

**Years of Experience:** 6

**Years with McMahon:** 5

## PROJECT EXPERIENCE

### City of Waltham, Transportation Master Plan, Waltham, MA

**Transportation Planner:** Developed a Transportation Master Plan to map out the City of Waltham's future, identifying and prioritizing transportation infrastructure improvements, in a 10-year action plan. Reviewed existing land use, demographic, employment, and transportation conditions, including analyzing transit data, pedestrian and bicycle accommodations, parking utilization and mode split. Assisted in the preparation and analysis of a community-wide online survey to seek input and feedback from residents and commuters on the city's existing and future transportation infrastructure. Also involved in developing public meeting presentations, identifying recommendations for transit and parking improvements, and writing the final report.

### City of Cambridge, River Street Reconstruction Project, Cambridge, MA,

**Transportation Planner:** Part of a multi-disciplinary team responsible for assisting the City of Cambridge with developing and executing a public engagement plan consisting of a core client group, City-manager appointed Working Group, and broad public involvement through a variety of tools and techniques. Responsible for multimodal transportation analysis to inform the reconstruction of River Street, including a parking utilization study and curbside inventory and transit analysis on River Street and through the Central Square busway. The community engagement and transportation analysis of the roadway redesign also involves modification of Carl Barron plaza and MBTA bus hub with an eye toward the future planning for Central Square.

### City of Cambridge, First Street Area Parking Study, Cambridge, MA,

**Transportation Planner:** Led a parking utilization study in the First Street area of Cambridge to inform decision making for the potential lease of 420 parking spaces from the City owned First Street Parking Garage. Developed a data collection methodology for both on-street and off-street parking in the study area using the ArcGIS mobile Collector App. Analyzed utilization rates and



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## NATALIE RAFFOL

demand for both current and future parking needs based on new development expected to occur in the study area. Prepared charts and graphics for use in a public meeting and final report to document findings.

### **City of Cambridge, Inman Square Intersection Safety Improvement Project, Cambridge, MA**

**Transportation Planner:** Responsible for evaluating transit, parking, and loading impacts for design alternatives as part of the Inman Square redesign to meet safety goals of Cambridge's Vision Zero Action Plan. Analyzed transit ridership on three routes serving the study area, bus stop spacing, bus stop design criteria, alternate routing, and opportunities to maximize efficiency for buses. Summarized impacts to transit and parking for each alternative and the preferred concept both quantitatively and in graphic format for public presentation.

### **City of Cambridge, Envision Cambridge Critical Sums Analysis, Cambridge, MA**

**Transportation Planner:** Completed an evaluation of the trip generation and associated transportation impacts of a range of zoning scenarios for the Alewife District Area Plan and city-wide as part of the city's Envision Cambridge zoning update. Potential traffic impacts on 7 intersections in the Alewife area and 7 intersections city-wide were analyzed for 30-year buildout scenarios using the city's critical sums analysis methodology from the Kendall Square—Central Square (K2C2) Master Plan. Presented critical sums methodology and transportation impacts based on land use scenarios to the Alewife Working Group. The Alewife area critical sums analysis resulted in determining a future vehicular mode share to reduce traffic impacts, which was applied city-wide to better understand traffic impacts in relation to planned multimodal transportation improvements.

### **Berkshire Regional Transit (BRTA), Shared Ride Access to Work Study, Berkshire County, MA**

**Transportation Planner:** Responsible for evaluating demographic and employment characteristics using GIS, as well as existing transit options in Berkshire County to determine the unmet employment transportation needs of low-income people and develop recommendations for a shared-ride, work-related transportation network. Analyzed demographic and employment data in GIS and produced map-based graphics to show the relationship between population characteristics and fixed-route transit service. Conducted a literature review to understand how other transit providers in similar areas are providing community transportation options for underserved populations. Prepared final report and graphics to depict recommendations for implementing a pilot study using existing transit providers and forming a Transportation Management Association (TMA). As part of the second phase of the study, developed an online survey to collect information on journey to work needs and willingness to use a shared-ride service in Berkshire County.



## FRANCISCO LOVERA, P.E.

**Project Role:** Task Leader, Implementation Strategies

Francisco has over 14 years of transportation engineering experience specializing in traffic engineering and highway safety. He has significant experience leading public presentations and outreach on a variety of topics, including roundabouts, pedestrian hybrid beacons (HAWK), pedestrian signal timings, and highway safety awareness. He has been responsible for coordinating roadway traffic monitoring during major construction projects.

### EDUCATION

B.S., Civil Engineering, Universidad Nacional Autónoma de México, 2003

### PROFESSIONAL REGISTRATIONS

Professional Engineer – RI (#9900), MA (EIT)

International Municipal Signal Association (IMSA), Work Zone

Temporary Control Technician & Traffic Signal Technician, Level I

### PROFESSIONAL AFFILIATIONS

Rhode Island Chapter of the Institute of Transportation Engineers, Past-President

RIITE Roundabout Task Force Founder Board Member

International Municipal Signal Association (IMSA), Member

**Years of Experience:** 14

**Years with McMahon:** 3

Prior to joining McMahon, he served as Chief Civil Engineer at the Traffic Engineering Section with the Rhode Island Department of Transportation (RIDOT), where he managed traffic engineering projects and served as traffic engineer for highway and bridge projects. He was also responsible for managing the state's Highway Safety Programs (NHTSA). Francisco also served as a Civil Engineer I with the Massachusetts Department of Transportation (formerly MassHighway), where he reviewed traffic engineering projects and proposed improvements in accordance with Massachusetts State Regulations and Federal standards and provided MEPA review coordination for the District 3 office.

## PROJECT EXPERIENCE

### City of Providence, City Walk Bicycle and Pedestrian Improvement Project, Providence, RI

**Deputy Project Manager:** Part of the lead team to determine physical improvements along Broad Street, Pine Street, Friendship Street and Clifford Street to provide bicycle and pedestrian connections from Roger Williams Park to Point Street Park through downtown. The scope includes public outreach in English, Spanish, and Khmer, traffic data collection, traffic and crash analysis, public art, green infrastructure, and concept and final design of a bicycle and pedestrian facility within the project limits. This project will build on the efforts performed by the City of Providence in the last few months to enhance the quality of life along Broad Street, while preserving and highlighting the cultural diversity within this section of the City with the ultimate goal to connect neighborhoods. McMahon is also providing construction services as part of the project.

### City of Providence, Woonasquatucket River Greenway, Providence, RI Project Manager.

McMahon is leading a team to improve pedestrian and bicycle amenities along the Woonasquatucket River from Eagle Square to Francis Street in Providence. The proposed infrastructure will reallocate pavement from motorized roadway users for bikes and pedestrians while maintaining or improving motor vehicle operations along the corridor. The project will also enhance the visitor experience providing pocket parks, kayak launch areas and public art to develop a sense of place along this 1-mile corridor. As part of the project, McMahon is also leading an extensive effort of public outreach to obtain feedback of the project from abutters and property owners.

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## FRANCISCO LOVERA

### **RIDOT, On-Call Traffic Design Consultant Services, Statewide, RI**

**Traffic Engineer:** Assisting in traffic signal optimization design for over 30 intersections statewide, including field data collection activities, development of design plans and bid documents, and coordination with RIDOT staff. Another task order assignment involves on-site traffic signal inspection and improvements for up to 20 intersections, including signal inspection, analysis, and design of signal improvements. Assisting the effort to update traffic signal controller settings and perform other field adjustments to address deficiencies encountered at each location and document field changes for future maintenance. Assisted RIDOT with the implementation and final inspection of Lead Pedestrian Interval at several locations statewide. Assisted RIDOT with traffic signal timely changes to manage detoured traffic during construction.

### **RIDOT, On-Call State Traffic Commission Traffic Studies Consultant, Statewide, RI**

**Senior Traffic Engineer:** As part of this on-call contract, McMahon has performed various traffic engineering studies, including signal installations and modifications, conceptual roundabout design, crosswalk evaluations, intersection designs, speed studies, passing zone studies, and right turn on red evaluations. McMahon has done traffic signal warrant analyses for locations in Johnston and East Greenwich, as well as traffic signal phasing changes studies for locations statewide. McMahon has also developed work orders for short term implementation of identified signage and striping improvements.

### **MBTA, Braintree MBTA Station, Braintree, MA**

**Project Manager.** Managed the project that provided pedestrian accommodations to the MBTA Braintree Station Garage entrance from Ivory Street. The project included the evaluation of the traffic signal equipment at the MBTA Station Garage entrance from Ivory Street and traffic analysis to evaluate the potential impacts to motorists due to pedestrian signal phases added to this intersection. As part of the traffic analysis, McMahon utilized historical traffic counts, performed capacity analysis of existing and proposed conditions. The scope of the project included developing traffic signal plan identifying the proposed improvements that included relocating some traffic signal structures, adding APS equipment for the pedestrian crossings, and minor geometric configurations to better accommodate the pedestrian crossings.

### **Town of Canton, Master Plan, Canton, MA**

**Senior Traffic Engineer:** Performed traffic analysis at two emphasis areas to determine potential improvements to increase safety and operations for all roadway users. Improvements considered varied from implementation of lead pedestrian interval, retiming of the coordinated corridors, reallocation of lane assignments and turn restrictions.





## CONOR MURPHY, P.E.

### Project Role: Multimodal Engineer

Conor has six years of experience in transportation engineering, including roadway, bicycle and pedestrian facility, and traffic signal design, development of traffic management plans for various roadway classifications, traffic analysis, and cost estimates on all types of transportation projects. Conor's roadway design experience includes conceptual design development, preparation of construction plans, traffic signal layout and timing plans, signs and pavement marking plans, traffic management plans, and construction staging plans. He also has experience in the construction management of roadway and traffic signal improvement projects, including inspection of constructed work for compliance with relevant standards, attending construction meetings, coordination with contractors and state/town officials, and project oversight. Conor is certified by the International Municipal Signal Association (IMSA) as a Work Zone Temporary Traffic Control Technician, a Traffic Signal Inspector, and a Traffic Signal Field Technician (Level 2). As a resident of Boston, Conor regularly walks and bicycles to work in Boston.

#### EDUCATION

B.S., Civil Engineering, Northeastern University, 2013

#### PROFESSIONAL TRAINING

Comprehensive Bikeway Design, Initiative for Bicycle and Pedestrian Innovation (IBPI), Portland State University, August, 2018

#### PROFESSIONAL REGISTRATION

Professional Engineer – MA, #54506

OSHA 10 Certified

#### PROFESSIONAL AFFILIATIONS

Association of Pedestrian and Bicycle Professionals (APBP)

**Years of Experience:** 6

**Years with McMahon:** 6

## PROJECT EXPERIENCE

### **Boston Transportation Department (BTD), On-Call Traffic Calming Planning and Design, Boston, MA**

**Multimodal Engineer:** Part of a team that is responsible for working with the City of Boston for a 3-year, on-call contract to identify, design and rapidly implement traffic calming measures in neighborhoods throughout Boston. Speed humps, mini-roundabouts, curb extensions, pavement marking and signage upgrades are some of the expected upgrades to be installed throughout the City of Boston. Public outreach with the specific community members will occur throughout the project to ensure the design meets the wants and needs of each local community.

### **City of Cambridge, Inman Square Intersection Safety Improvement Project, Cambridge, MA**

**Multimodal Engineer:** Responsible for design of the traffic signal and sign and pavement markings of an atypical intersection layout. Designed traffic signals for Transit Signal Priority, bicycle, and pedestrian accommodation. Progressed multimodal design to final design including protected intersection design, floating bus islands, crosswalks, and separated bike lanes. Coordinated with project team regarding multimodal elements to achieve the complex project goals.

### **City of Providence, City Walk Bicycle and Pedestrian Improvement Project, Providence, RI**

**Multimodal Engineer:** Part of the lead team to determine physical improvements along Broad Street, Pine Street, Friendship Street and Clifford Street to provide bicycle and pedestrian connections from Roger Williams Park to Point Street Park through downtown. The scope includes public outreach,

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## CONOR MURPHY

traffic data collection, traffic and crash analysis, public art, green infrastructure, and concept and final design of a bicycle and pedestrian facility within the project limits. This project will build on the efforts performed by the City of Providence in the last few months to enhance the quality of life along Broad Street, while preserving and highlighting the cultural diversity within this section of the City with the ultimate goal to connect neighborhoods. Responsible for field traffic signal inspections, design of the bike infrastructure elements, including separated two-way facility and traditional bike lanes. Coordinated traffic signal modifications to accommodate the roadway reconfiguration, and preparation of contract documents.

### **MBTA, Bus Service Planning Projects, Greater Boston, MA**

**Senior Project Engineer:** Designed transit improvements for bus corridors in Roslindale and South Boston, including segments of exclusive bus lanes and shared bus-bike lanes. Performed signal inspection to determine available capacity to optimize transit operations through signalized intersections. Coordinated with MBTA and city of Boston on how to best interpret current standards and devised a plan to implement an AM peak-only bus lane and off-peak parking lane along the Washington Street corridor in Roslindale. Managed staff engineers to create signage and striping plans, and details for final construction plans.

### **MBTA, Bus Stop Accessibility Improvements Project, Greater Boston, MA**

**Project Engineer:** Created base plan maps, and utilized audit forms, to collect accessibility compliance information at bus stops, and curb ramps at nearby intersections, for approximately 30 locations in the MBTA bus system. Prepared design plans for bus shelters, benches, and other amenities, at bus stops based on the results of the accessibility audits. Construction phase services were subsequently provided.

### **Town of Watertown, Bicycle and Pedestrian Plan, Watertown, MA**

**Multimodal Engineer:** McMahon has been selected by the Town of Watertown to provide services to develop a town-wide bicycle and pedestrian plan. The Town's goal is to increase opportunities for bicycling and walking by increasing safety and accessibility, thereby reducing the number of vehicular trips in to Watertown. Conor will be responsible for completing a bicycle level of stress analysis and developing conceptual design improvements that will serve as the basis for the implementation section of the plan.

### **RIDOT, Safe Routes to School Traffic Design Consultant Services, Statewide, RI**

**Project Engineer:** Assisted with the development of base mapping and preparation of plans to be used in the planning and design of pedestrian and bicycle improvements related to the Safe Routes to School (SRTS) program. The SRTS program aims to encourage school children to walk and bike to school.



## SANDRA M. CLAREY

### Project Role: Transit Planning

Sandra Clarey has over 14 years of experience in multimodal transportation planning in the U.S., Ireland, and Australia. Sandra specializes in transit planning and design, primarily for bus operations, but her background in traffic and transportation planning gives her an edge on projects where improvements for all modes are being considered and a holistic approach is required. Since joining McMahon, she has guided the planning, design and construction of improvements for numerous bus routes for transit agencies, municipalities, regional planning commissions, and private sector clients. Several of these projects have involved extensive community engagement and inter-agency coordination. In her prior role as Senior Transportation Planner/Analyst at the Massachusetts Bay Transportation Authority (MBTA), she was responsible for evaluating bus and ferry services, and responding to public comment on transit route operations and requests for data. She worked closely with the public, government agencies, elected officials, consultants as well as other MBTA departments.

#### EDUCATION

Master of Regional and Urban Planning (MRUP), University College Dublin, 2004

B.A., Geography, University of Dublin, Trinity College, 2000

#### PROFESSIONAL AFFILIATIONS

Northeast Passenger Transportation Association (NEPTA), Board Member

ACEC/MA MBTA Partnering Committee, Member

Association of Pedestrian and Bicycle Professionals (APBP), Member and Boston Chapter Steering Committee Member

#### PRESENTATIONS

*Designing Transit to Support Active Transportation, and Vice Versa*, Association of Pedestrian and Bicycle Professionals Webinar, 2017

*Bus Stop Planning 101*, Southern New England American Planners Association Conference, 2017

*Leveraging Transit Investment to Implement Complete Streets: A Win-Win for Cities and Towns*, Grow Smart Rhode Island, 2016

*Bus Stops Accessible for All*, Pennsylvania Public Transportation Association Spring Conference, 2016

*Bicycles Count in Cambridge*, New England Bike-Walk Summit, 2015

**Years of Experience:** 14

**Years with McMahon:** 8

### PROJECT EXPERIENCE

#### City of Waltham, Transportation Master Plan, Waltham, MA

**Transit Planner:** Reviewed existing rail, bus and shuttle services operating throughout the city, including ridership, frequency, and on-time performance. Prepared a congruency map to overlay existing transit service with existing and proposed trip generators, to identify potential gaps in the service network. Evaluated Main and Moody streets for potential service improvements and devised a bus stop optimization plan along with identifying transit priority measures, within the context of a Complete Streets approach. Developed a series of short and long-term transit recommendations citywide, including operational improvements, TDM measures, concept designs for bus stop improvements at 20 intersections, and an enhanced transit hub adjacent to Waltham Commuter Rail Station.

#### MBTA, Bus Stop Accessibility Improvements, Greater Boston, MA

**Project Manager:** Managed the audit of 150 bus stops, focusing on ADA and MBTA accessibility and safety requirements at the stops and nearby intersections, prioritized stops based on their deficiencies, and developed preliminary design plans for the top 50 stops. Designed accessibility improvements, curb extensions, shelters, and stop eliminations at 25 stops in South Boston. Oversaw detailed audits at an additional 70 critical stops, identified in the MBTA's Plan for Accessible Transit Infrastructure (PATI) project. Evaluated pedestrian crossings to connect isolated stops to a sidewalk network, and made recommendations for adding unsignalized crosswalks, crossings with flashing beacons or edge lit flashing LED signs, and pedestrian signals to existing signalized intersections. Oversaw the final design plans for over 75 bus stops, including new or reconstructed sidewalks and curb ramps, and pedestrian



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## SANDRA CLAREY

crossing improvements, in coordination with 27 municipalities, MassDOT, Massport and DCR. Assisting with the preparation of specifications and bid documents, and provision of construction phase services.

### **MBTA, On-Call GEC Bus Service Planning Projects, Greater Boston, MA**

**Project Manager:** McMahon, as a subconsultant on an on-call contract, was engaged by the MBTA to undertake a variety of bus service planning and design tasks. Responsible for managing the various projects, including the Roslindale Bus Lane; Silver Line Emergency Access Ramp Feasibility Study; South Boston Exclusive Bus Lane; Massachusetts Avenue Bridge Bus Lane Feasibility Study; Quincy Center Station Busway Relocation Study; Black Falcon/Stone Zoo Bus Stop Improvements; Bus Shelter Feasibility Study; and the Tomasello Way Bus Turnaround.

### **MBTA, Key Bus Route Improvement Program, Greater Boston, MA**

**Project Manager:** Responsible for managing the planning and design efforts to enhance bus service and the bus stop environment along its 15 Key Bus Routes. Developed bus stop optimization plans, identified various improvements to reduce travel times, improve operations and ADA accessibility, provide rider amenities, and minimize parking impacts, and led or participated in about 50 community meetings across nine municipalities. Curb extensions, sidewalk improvements, signage upgrades, and stop removals were included in the design of over 800 bus stops. Prepared bid documents and provided construction phase services.

### **Rhode Island Public Transit Authority (RIPTA), Rhode Island Bus Stop Design Guide, Statewide, RI**

**Project Manager:** Developed guidelines to include bus stop design typologies that emphasize pedestrian safety and accessibility, and provide recommendations on how RIPTA, RIDOT and local communities, can successfully incorporate transit infrastructure and amenities into the state's roadway network, in accordance with Complete Streets directives. Also, led efforts to formalize the process for RIDOT project design review coordination with RIPTA. The project received the 2018 Innovative Transportation Solutions Award from WTS Rhode Island.

### **Portland Area Comprehensive Transportation System (PACTS), Transit Stop Access Project – Phase 1, Greater Portland, ME**

**Project Manager:** Prioritized bus stops for detailed inventory and accessibility audits, using GIS data to analyze ridership, multimodal connections, and transit-generating land-uses. A prioritization of bus stops and transit mini-hubs, considering ridership and deficiencies at and near bus stops, was undertaken to identify opportunities for bus stop, pedestrian and bicycle enhancements that will now be designed to improve access to transit in Greater Portland.



## CECELIA COBB

**Project Role: Planner/Urban Design**

Cecelia Cobb is an Urban Designer in McMahon's Boston office. Cecelia works with the Planning Team on projects ranging from comprehensive bicycle and pedestrian master plans to detailed work on streetscape and bus stop redesigns. She brings experience in multimodal transportation from multiple sectors and countries; she first found a passion for transportation planning in Copenhagen, Denmark and completed her graduate education in Montréal, Canada. Cecelia has experience with the Adobe Design Suite, Google SketchUp, GIS, and with website design and branding. She is proficient in spoken and written French.

### EDUCATION

Master's of Urban Planning, McGill University, 2018

B.A., Architectural Studies (minor in Studio Art), Hobart & William Smith Colleges, 2012

### PROFESSIONAL AFFILIATIONS

Young Professionals in Transportation (YPT), Member

**Years of Experience:** 7

**Years with McMahon:** < 1

## PROJECT EXPERIENCE

### City of Cambridge, Grand Junction Multi-Use Path and Concept Design, Cambridge, MA

**Urban Designer:** Part of a multi-disciplinary team responsible for assisting the City of Cambridge to support the city's goals with regard to active transportation, complete streets, vision zero, and neighborhood context to develop the Grand Junction Multi-Use Path. The project will provide improved connections to other multi-use paths in the region and preserve the opportunity for future two-track rail transit service along the Grand Junction right-of-way. Responsible for developing and creating graphics for the public engagement and concept design phases, including visualizing multi-modal traffic volumes to facilitate safe crossings of the multi-use path at arterial roadways.

### Town of Watertown, Comprehensive Bicycle & Pedestrian Master Plan, Watertown, MA

**Urban Designer:** This Plan will determine and prioritize future infrastructure improvement projects for the Town of Watertown to make it easier for people of all ages and abilities to choose more active forms of transportation. The plan will identify new and improved bicycle and pedestrian connections, as well as improve connections to the region's larger active transportation network. Created marketing and branding materials related to the Plan's public engagement process and will help develop and design potential bicycle and pedestrian accommodations for the Plan's final recommendations.

### Town of Burlington, Streetscape Design Guide, Burlington, MA

**Urban Designer:** Assist in preparing a streetscape design guide based on recommended Complete Streets principles and practices in the Town's Comprehensive Master Plan. This guide would standardize streetscape element within the Town's roadway network and would be used by Town staff and the development community to create improved multimodal transportation infrastructure in Burlington. Created design templates for different road

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## CECELIA COBB

typologies to receive streetscape improvements in line with recommended design best practices.

### **Portland Area Comprehensive Transportation System (PACTS), Transit Stop Access Project – Phase 2, Greater Portland, ME**

**Urban Designer:** A prioritization of bus stops and transit mini-hubs, considering ridership and deficiencies at and near bus stops, was undertaken to identify opportunities for bus stop, pedestrian and bicycle enhancements that will now be designed to improve access to transit in Greater Portland. Created photo-realistic renderings for specific mini-hub locations to help the client envision how the work of this project would look once implemented.

## Representative Projects from Previous Employers

### **Copenhagenize Design Company, Montréal QC, Canada**

**Planning & Design Summer Associate:** For this global consulting firm that specialized in all matters relating to bicycle culture, planning, traffic and communications, provided research, writing, document layouts and graphics for client deliverables. Worked primarily on design recommendations for a bicycle network plan for the newly constructed Université de Montréal Sciences campus for the City of Montréal.

### **A Better City, Boston, MA**

**Marketing & Administrative Coordinator:** For this membership-based nonprofit organization providing corporate and institutional leadership to ensure progress on transportation, land development, and environmental investments, collaborated among board members and staff on programming, social media outreach, membership development, website maintenance, and logistics of special events and conferences. Worked on the *Challenge for Sustainability* program, a green business and engagement-building initiative.

## Representative Projects from Master's Program

### **Thesis Project, Community Impact & Complete Streets, Montréal QC, Canada**

This research project aimed to answer the question: If and how can Complete Streets policies better address equity and social inclusion through their creation, implementation, and coordinated municipal planning? Complete Streets are defined as streets for everyone, made to enable safe access for all users, including pedestrians, bicyclists, motorists and transit riders of all ages and abilities, yet not all communities and population groups have equal value and inclusion in Complete Streets public processes. This project culminated in a 70-page report which reviewed three case studies where local governments had enacted Complete Streets policies: Somerville, Massachusetts; Baldwin Park, California; and Portland, Oregon. The report reviewed existing literature to provide larger context for these cases, and concluded with key findings and recommendations which city planners may use to improve their own Complete Streets policies and related projects in the future.



## Carol Schweiger, President, Schweiger Consulting LLC

Ms. Schweiger has 40 years of experience in transportation consulting, and is nationally and internationally recognized in the area of Intelligent Transportation Systems (ITS) and Advanced Public Transportation Systems (APTS). She is Co-chair of the Transportation Research Board (TRB) Committee on Emerging and Innovative Public Transport and Technologies, Chair of the New England ITS Board of Directors, a Charter Member of the Public Transportation Systems and Services (PTSS) Committee and Mobility on Demand Alliance of the Intelligent Transportation Society of America (ITS America), on the Advisory Board of and author for *Intelligent Transport* (a UK magazine), and member of the International Program Committee of the ITS World Congress, TRB ITS Committee and TRB Forum on Preparing for Automated Vehicles and Shared Mobility. She was a National Transit Institute (NTI) Fellow for Advanced Technologies and Innovative Practices from 1995 to 1997.

### Education

B.S., Mathematics, Tufts University, 1978  
M.S., Civil Engineering, Cornell University, 1980

Certificate, Administration and Management, Harvard University Extension, 1988  
Certificate, GIS and Network Analysis Tools, Massachusetts Institute of Technology, 1989  
Certificate, Transit Service and Operations Planning, Massachusetts Institute of Technology, 1980

### Years of Experience

40

Ms. Schweiger provides detailed technical assistance, including new mobility strategy development, systems engineering, technology strategy development and detailed technology procurement and implementation assistance, to transit and paratransit agencies, and state and local departments of transportation (DOTs) that are deploying ITS technologies, and to the USDOT and TRB. She has provided over 60 agencies with ITS technical assistance. Recently, she authored numerous articles and delivered multiple presentations to both national and international audiences about applying MaaS in the US. She co-developed and was the lead instructor for five transit ITS training courses for the NTI, and six USDOT Professional Capacity Building (PCB) courses on Transit Management Standards and Traveler Information Standards. Ms. Schweiger authored five TRB Transit Cooperative Research Program (TCRP) Synthesis reports, and authored one and co-authored two full TCRP reports.

### Selected Transit Agency Project Experience:

- Tompkins County Mobility as a Service (MaaS) Development, Tompkins County Department of Social Services, Ithaca, NY, Advisor
- Evaluate Existing and Planned Technology Projects, Collier Area Transit, Naples, FL, Project Management and Technical Lead
- Transit Management Technologies Consulting, Gadabout (paratransit provider), Ithaca, NY, Project Manager and Technical Lead
- Identification of Issues Associated with the CAD/AVL System and Development of Solutions, PalmTran, West Palm Beach, FL, Technical Specialist
- Real-time Transit Information System Consulting, Interurban Transit Partnership, Grand Rapids, MI, Project Management and Technical Lead
- Development of Specifications and Procurement of Public Transportation Scheduling Software and Other Technologies, York County Community Action Corporation (YCCAC), Sanford, ME, Project Manager and Technical Lead
- ITS Consulting, Norwalk Transit District (NTD), Norwalk, CT, Project Manager
- Transit Management Technologies Consulting, Southeastern Regional Transit Authority (SRTA), New Bedford, MA, Principal-in-Charge and Project Manager
- Transit Management Technologies Consulting, Worcester Regional Transit Authority (WRTA), Worcester, MA, Principal-in-Charge and Project Manager
- CAD-AVL Scoping and Specification Development, Capital District Transportation Authority (CDTA), Albany, NY, Project Manager
- ITS Consulting, Metropolitan Tulsa Transit Authority, Tulsa, OK, Technical Specialist

- Fairfax Connector ITS Plan Update, Specifications Development, and Procurement and Implementation Assistance, Fairfax County Department of Transportation, Fairfax County, VA, Project Manager and Lead Technical Contributor
- Computer Aided Dispatch and Automated Vehicle Location Consultant, Ann Arbor Area Transportation Authority, Ann Arbor, MI, Project Manager and Lead Technical Contributor
- Development of Specifications and Procurement of Transit Management Technology, Immanuel (in-house non-emergency medical transportation system), Omaha, NE, Project Manager and Technical Lead

**Selected U.S. Department of Transportation Project Experience:**

- ITS for Underserved Communities, Technical Specialist
- Multimodal and Accessible Travel Standards Assessment (MATSA), Key Technical Specialist
- National Aging and Disability Transportation Center (NADTC) Technology Assistance, Technical Lead
- Mobility Services for All Americans (MSAA) Technical Assistance, Federal Highway Administration (FHWA)/Federal Transit Administration (FTA), Technical Lead
- MSAA Knowledge and Technology Transfer, FHWA/FTA, Technical Lead
- Accessible Transportation Technologies Research Initiative (ATTRI) International Support, FHWA, Intelligent Transportation Systems (ITS) Joint Program Office (JPO)/FTA, Technical Specialist
- United We Ride (UWR)/MSAA – Foundation Research, Phase I and Phase II Technical Assistance, FHWA/FTA, Project Manager

**Selected State Project Experience:** Transit Technology Planning, and Procurement and Implementation Assistance for New Hampshire DOT (NHDOT), Vermont Agency of Transportation (VTTrans), Pennsylvania DOT, Tennessee DOT and Missouri DOT

**Selected Training and Research Experience:** available on request

**Schweiger Consulting LLC, President, 2015-present**

Responsible for all transit technology projects, activities, contracts and proposals.

**TranSystems Corporation, Vice President, 1996– 2015**

Responsible for TranSystems' ITS Group's activities, contracts and proposals.

**EG&G Dynatrend Inc., Transportation Consulting Group, Senior Transportation Analyst, 1988– 1996**

Responsible for EG&G Dynatrend's Transportation Consulting Group's ITS activities, contracts and proposals.

**Dynamics Research Corporation, Senior Operations Research Analyst, 1979– 1988**

**Cornell University, School of Civil and Environmental Engineering, Teaching and Research Assistant, 1978– 1979**

**AVCO Corporation, Systems Division, Engineering Assistant, 1976– 1979**

**Publications and Presentations:** Eight TCRP reports, one Congressional briefing regarding technology to facilitate mobility, numerous Federal guidance reports, and over 90 presentations to national and international audiences. Reports, papers and presentations available on request.



References



## References

The McMahon Team is pleased to provide client references below. We encourage you to contact them to discuss our qualifications, responsiveness, and quality control.

### McMahon References

#### Cambridge Transportation Projects

Jerry Friedman, PE  
Supervising Engineer  
City of Cambridge  
147 Hampshire Street  
Cambridge, MA 02139  
(617) 349-9720  
[jfriedman@cambridgema.gov](mailto:jfriedman@cambridgema.gov)

#### Waltham Transportation Master Plan

Michael Garvin, PE  
Traffic Engineer  
City of Waltham  
119 School Street, Room 10  
Waltham, MA 02451  
(781) 314-3404  
[mgarvin@city.wltham.ma.us](mailto:mgarvin@city.wltham.ma.us)

#### Canton Comprehensive Master Plan

Laura Smead, AICP  
Town Planner  
Canton Town Hall  
801 Washington Street  
Canton, MA 02021  
(781) 575-6575  
[lsmead@town.canton.ma.us](mailto:lsmead@town.canton.ma.us)

### Carol Schweiger References

#### Mobility-as-a-Service Business Model Creation

Dwight Mengel  
Chief Transportation Planner  
Tompkins County Dept. of Social Services  
320 W. Martin Luther King Street  
Ithaca, NY 14850  
(607) 274-5605  
[dwight.mengel@dfa.state.ny.us](mailto:dwight.mengel@dfa.state.ny.us)

#### Multimodal and Accessible Travel Standards Assessment

Robert Sheehan  
Office of Mobility Innovation  
Federal Transit Administration  
1200 New Jersey Avenue, SE  
Washington, DC 20590  
(202) 366-6817  
[Robert.sheehan@dot.gov](mailto:Robert.sheehan@dot.gov)

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## Other Pertinent Information & Evaluation Criteria



## Other Pertinent Information & Evaluation Criteria

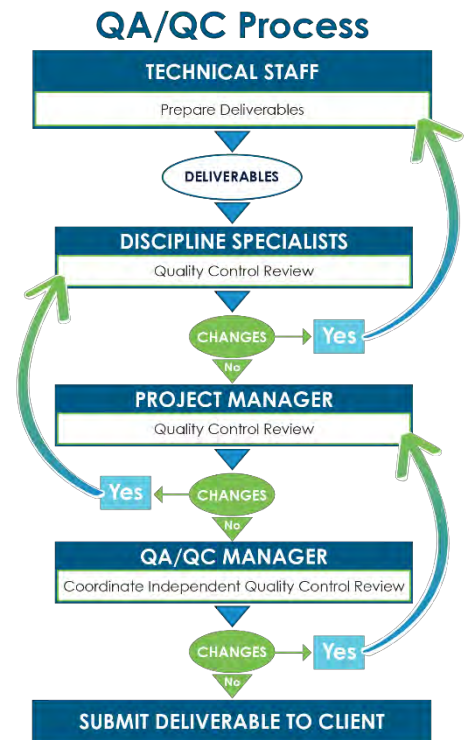
### Quality Assurance/Quality Control

It is the policy of McMahon Associates, Inc. (McMahon) to provide quality work, services, and products that meet or exceed the expectations and requirements of its clients. The company is committed to continuous quality improvement through involvement of all personnel in a systematic, logical process to continually improve the company's work practices and procedures.

McMahon's Board of Directors adopted a Quality Management Policy in August, 2014. The company's Quality Assurance Team is comprised of the McMahon Associates Board of Directors, the Quality Assurance Officer (QA Officer), and Quality Assurance Committee (Committee) and has the responsibility to plan and manage the implementation and operation of the Quality Assurance Process. The Committee is comprised of members from each region, as well as the QA Officer of the firm.

Each full-time employee receives a copy of this policy when he/she receives a copy of McMahon's Standard Operating Procedures upon starting employment at McMahon. Each full-time employee also receives a copy of this policy when updated. Project employees are required to document adherence to the Quality Policy. McMahon's Quality Policy has been developed to ensure conformance to specified requirements, procedures, and practices as they are continually updated in the industry.

Our team's solid project administration plan will ensure that the project is completed on time and within budget. We will accomplish this through McMahon's experienced leadership in managing multimodal transportation projects consisting of specialized team members and ongoing communication with the Town of Arlington.



### Evaluation Criteria

RFP Selection Criteria	Suggested Rating: Highly Advantageous
1. Staffing Plan and Methodology	<p>We are confident that McMahon has provided an experienced and multidisciplinary team of professionals with each member's training, educational background, professional registration, and project experience reflected in each resume.</p> <p>Our <b>Project Manager, Christi Apicella, AICP</b> has spent more than 21 years in transportation planning and community development for both public and private clients. As a senior transportation planner, she has led numerous multimodal transportation projects in advancing sustainable transportation modes in urban environments.</p> <p>Our <b>Principal-in-Charge, Maureen Chlebek, PE, PTOE</b> has more than 34 years of project management and transportation engineering experience and has managed numerous projects for state, municipal and private clients.</p> <p>Our <b>Work Plan</b> proposes a detailed, logical, and creative</p>

	strategy that addresses all the goals and priorities of the Town of Arlington.
2. Depth of Experience with Similar Projects	<p>Our <b>Firm/Team's Experience with Municipalities</b> section and examples in the <b>Work Plan</b> highlight our experience in Massachusetts and Rhode Island for a range of sustainable transportation planning and engineering, community engagement, town-wide transportation plans, and understanding of innovative transportation technologies. McMahon's transportation planning and engineering experience spans 43 years, having completed more than 18,000 projects for more than 4,000 clients. As progressive planners and engineers, we <u>plan</u> and <u>design</u> bicycle, pedestrian, and transit projects knowing first-hand how to implement safe and efficient accommodations for all users. The guiding principle in all of our work is developing transportation solutions to build better communities. Schweiger Consulting's expertise in new mobility strategies and technology provides further experience with projects oriented towards the future of transportation.</p>
3. Responsiveness of Proposal	<p>We are confident that the McMahon team has provided a clear understanding of this project by identifying four themes that we believe are the key elements for our unique planning approach. These themes address all the goals and priorities of the Town of Arlington in developing an action-oriented, 20-year vision for sustainable transportation that balances the needs of all transportation modes. We have addressed our approach to new mobility concepts and emerging technologies in the transportation system, and the importance of engaging in a robust, community outreach program.</p>
4. Strength and Credibility of Client References	<p>The McMahon Team has provided five (5) client references as testimony to our professional reputation, past record of performance, and ability to perform quality work on similar projects. At McMahon, we are driven to succeed for every client. We strive to serve our clients effectively and work diligently to foster genuine and long-lasting relationships and partnerships. Our reputation is based on our long history of completing successful projects on-time and on-budget.</p>





## Required Forms



**CERTIFICATE OF NON-COLLUSION FORM**  
**TOWN OF ARLINGTON**  
**SUSTAINABLE TRANSPORTATION PLAN**

The undersigned certifies under penalties of perjury that this bid or proposal has been made and submitted in good faith and without collusion or fraud with any other person. As used in this certification the word "person" shall mean any natural person, business, partnership, corporation, union, committee, club, or other organization, entity, or group of individuals.

*Maureen Chlebek*

\_\_\_\_\_  
Signature of Individual Submitting Bid or Proposal

Maureen Chlebek, P.E., PTOE

\_\_\_\_\_  
Name of Individual Submitting Bid or Proposal

McMahon Associates, Inc.

\_\_\_\_\_  
Name of Business

November 4, 2019

\_\_\_\_\_  
Date

BY STATE LAW THIS NON-COLLUSION FORM MUST BE SIGNED AND SUBMITTED WITH THE BID OR PROPOSAL.

**CERTIFICATE OF TAX COMPLIANCE FORM**  
**TOWN OF ARLINGTON**  
**SUSTAINABLE TRANSPORTATION PLAN**

Pursuant to MGL Chapter 62C, Section 49A, I certify under the penalties of perjury that I have complied with all laws of the Commonwealth of Massachusetts relating to taxes, reporting of employees and contractors, and withholding and remitting child support.

<u>23-2462387</u>	<u><i>Maureen Chlebek</i></u>	Maureen Chlebek Vice President & Regional Manager, New England
Social Security Number or Federal Identification Number	Signature and Title of Individual or Responsible Corporate Officer	

BY STATE LAW THIS CERTIFICATE OF TAX COMPLIANCE FORM MUST BE SIGNED AND SUBMITTED WITH THE BID OR PROPOSAL.



# Insurance Certificate





MCMAASS-01

BSMCMAHON

## CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

1/3/2019

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

**IMPORTANT:** If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

<b>PRODUCER</b> McMahon Agency, Inc. 901 Simpson Avenue P.O. Box 239 Ocean City, NJ 08226	<b>CONTACT NAME:</b> <b>PHONE</b> (A/C, No, Ext): (609) 399-0060 <b>FAX</b> (A/C, No): (609) 399-9178 <b>E-MAIL ADDRESS:</b> info@mcmahonagency.com
	<b>INSURER(S) AFFORDING COVERAGE</b> <b>INSURER A : American Fire &amp; Casualty</b> <b>INSURER B :</b> <b>INSURER C :</b> <b>INSURER D :</b> <b>INSURER E :</b> <b>INSURER F :</b>
<b>INSURED</b>  McMahon Associates, Inc. 120 Water Street 4th Floor Boston, MA 02110	<b>NAIC #</b> <b>24066</b>

## COVERAGES

## CERTIFICATE NUMBER:

## REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR  GEN'L AGGREGATE LIMIT APPLIES PER: <input checked="" type="checkbox"/> POLICY <input checked="" type="checkbox"/> PROJECT <input checked="" type="checkbox"/> LOC OTHER:			BKA50228024	1/14/2019	1/14/2020	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 1,000,000 MED EXP (Any one person) \$ 15,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000
A	<input checked="" type="checkbox"/> AUTOMOBILE LIABILITY <input type="checkbox"/> ANY AUTO OWNED AUTOS ONLY <input checked="" type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS ONLY <input checked="" type="checkbox"/> NON-OWNED AUTOS ONLY			BAA50228024	1/14/2019	1/14/2020	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
A	<input checked="" type="checkbox"/> UMBRELLA LIAB <input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE DED <input checked="" type="checkbox"/> RETENTION \$ 10,000			USO50228024	1/14/2019	1/14/2020	EACH OCCURRENCE \$ 5,000,000 AGGREGATE \$ 5,000,000
A	<input checked="" type="checkbox"/> WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N N	N/A	XWA50228024	1/14/2019	1/14/2020	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTHER E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

## CERTIFICATE HOLDER

## CANCELLATION

FOR BIDDING PURPOSES ONLY

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE



# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

4/4/2019

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

**IMPORTANT:** If the certificate holder is an **ADDITIONAL INSURED**, the policy(ies) must be endorsed. If **SUBROGATION IS WAIVED**, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

<b>PRODUCER</b> Fenner & Esler Agency, Inc 467 Kinderkamack Road P. O. Box 60 Oradell NJ 07649-0060	<b>CONTACT NAME:</b> certs@fenner-esler.com <b>PHONE (A/C, No, Ext):</b> (201)262-1200 <b>FAX (A/C, No):</b> (201)262-7810 <b>E-MAIL ADDRESS:</b> <b>INSURER(S) AFFORDING COVERAGE</b> <b>INSURER A:</b> Berkshire Hathaway Specialty Insurance <b>INSURER B:</b> <b>INSURER C:</b> <b>INSURER D:</b> <b>INSURER E:</b> <b>INSURER F:</b>	<b>NAIC #</b> 22276
<b>INSURED</b> McMahon Associates, Inc. 425 Commerce Drive, Suite 200 Fort Washington PA 19034		

**COVERAGES****CERTIFICATE NUMBER:** Master 19-20**REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
	<b>COMMERCIAL GENERAL LIABILITY</b> <input type="checkbox"/> CLAIMS-MADE <input type="checkbox"/> OCCUR  GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC <input type="checkbox"/> OTHER:						EACH OCCURRENCE \$ DAMAGE TO RENTED PREMISES (Ea occurrence) \$ MED EXP (Any one person) \$ PERSONAL & ADV INJURY \$ GENERAL AGGREGATE \$ PRODUCTS - COMP/OP AGG \$ \$
	<b>AUTOMOBILE LIABILITY</b> <input type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> HIRED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> NON-OWNED AUTOS						COMBINED SINGLE LIMIT (Ea accident) \$ BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ \$
	<b>UMBRELLA LIAB</b> <input type="checkbox"/> OCCUR <b>EXCESS LIAB</b> <input type="checkbox"/> CLAIMS-MADE <input type="checkbox"/> DED <input type="checkbox"/> RETENTION \$						EACH OCCURRENCE \$ AGGREGATE \$ \$
	<b>WORKERS COMPENSATION AND EMPLOYERS' LIABILITY</b> ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below Y/N <input type="checkbox"/> N/A						PER STATUTE <input type="checkbox"/> OTH-ER <input type="checkbox"/> E.L. EACH ACCIDENT \$ E.L. DISEASE - EA EMPLOYEE \$ E.L. DISEASE - POLICY LIMIT \$
A	<b>Professional Liability</b>			47-EPP-307489-01 P/L Deductible \$50,000	4/16/2019	4/16/2020	Per Claim Limit \$5,000,000 Aggregate Limit \$6,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Professional Liability Deductible - \$50,000

**CERTIFICATE HOLDER****CANCELLATION**

Sample	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.
	AUTHORIZED REPRESENTATIVE Timothy Esler/DEBBIE

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120 Water Street, 4th Floor | Boston, MA | 02109  
617.556.0020  
[mcmahonassociates.com](http://mcmahonassociates.com)





# TOWN OF ARLINGTON

## SUSTAINABLE TRANSPORTATION PLAN

RFP #19-50

November 5, 2019



# TOWN OF ARLINGTON

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# SUSTAINABLE TRANSPORTATION PLAN

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**RFP #19-50**

**November 5, 2019**



Submitted by:

**Matthew Smith, Principal**

Nelson\Nygaard Consulting Associates, Inc.

a: 77 Franklin Street, 10th Floor

Boston, MA 02110

p: 857-305-8016

e: [msmith@nelsonnygaard.com](mailto:msmith@nelsonnygaard.com)

In association with:



Printed on 100% recycled paper



November 5, 2019

Adam W. Chapdelaine, Town Manager  
Town of Arlington  
730 Massachusetts Avenue  
Arlington, MA 02476

**RE: RFP #19-50 Sustainable Transportation Plan**

Dear Mr. Chapdelaine,

On behalf of Nelson\Nygaard Consulting Associates, Inc., I am pleased to submit this proposal to the Town of Arlington for the Sustainable Transportation Plan. We know Arlington well and are excited about the possibility of working with the Town on this long-range, forward-thinking transportation strategy. Nelson\Nygaard specializes in helping communities transform their transportation systems by changing the way people think about mobility.

In Massachusetts, we have worked with the City of Newton to reimagine existing transportation and curbside contexts, inform their housing and economic development strategies, and move the conversation forward to allow more transit-oriented and parking-light mixed-use development. We've worked with the City of Everett to develop ambitious, implementable plans to offer all residents access to congestion-free mobility options, while supporting new development without increasing car trips. For the City of Salem, we studied intra-city shuttle options able to equitably serve riders of all ages and abilities and recommended an on-demand micro-transit system over traditional fixed-route systems. Finally, we have developed curbside strategies that balance parking supply and demand with the need to accommodate emerging mobility and service needs in over a dozen local communities, including in Arlington Center.

We have considered the needs of the Town and have assembled a team that combines national expertise with local knowledge to complete this plan. **Project Manager Matt Smith** has been in your shoes as the Director of Traffic and Parking for the City of Salem, where he was responsible for planning and implementing transportation initiatives citywide. **Alyson Fletcher**, who delivered the Newton in Motion project and works on street network and active transportation plans across the country, will lead active transportation, multimodal planning, and outreach tasks. Matt and Alyson will be supported by a deep bench of transportation data analysts and visual designers led by Suzie Birdsell and Jacob DeGeal. **Principal-in-Charge Bill Schwartz**, who assessed the Dallin School as part of the Massachusetts Safe Route to Schools program, is currently working on transportation plan for the Town of Winchester, and brings over 35 years of experience in all aspects of transportation planning to ensure all products meet the highest quality standards. **BETA Group**, whose team brings decades of experience in capital planning, design, land use planning, and engineering, will ensure strategies are aligned with Arlington's goals and capital planning efforts.



We hope you will recognize the strengths of our proposal, staff capabilities, and firm experience as indications Nelson\Nygaard is qualified and the firm to carry out this plan. We submit our proposal in accordance with the terms and conditions outlined in the Request for Proposal and our offer will remain in effect for at least ninety (90) days from the date of submittal.

If we can provide any additional information about our firm or this proposal, please do not hesitate to contact Nelson\Nygaard's primary contact for this project Principal Matt Smith at [msmith@nelsonnygaard.com](mailto:msmith@nelsonnygaard.com) or 857-305-8016, or me at [lriley@nelsonnygaard.com](mailto:lriley@nelsonnygaard.com) or 503-488-2247.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Leah Riley', with a stylized, flowing script.

Leah Riley  
Managing Director



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## **APPENDIX A: REQUIRED FORMS**

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TOWN TAVERN

The Muse's Window





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## FIRM AND TEAM EXPERIENCE

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We put people first.

Nelson\Nygaard Consulting Associates, Inc. is an internationally recognized firm committed to developing transportation systems that promote vibrant, sustainable, and accessible communities. Founded by two women in 1987, Nelson\Nygaard has grown from its roots in transit planning to a full-service transportation firm with over 130 people in offices across the United States.

In keeping with the values set by our founders, Nelson\Nygaard puts people first. We recognize that transportation is not an end by itself but a platform for achieving broader community goals of mobility, equity, economic development, and healthy living. Our hands-on, national experience informs but doesn't dictate local solutions. Built on consensus and a multimodal approach, our plans are renowned as practical and implementable.



## NELSON\NYGAARD'S SPECIALIZATIONS ARE:



### TRANSIT

Designing and developing great transit services for people



### ACTIVE TRANSPORTATION AND SAFETY

Making places better for people to walk, bike, and gather



### STREETS AND CITIES

Balancing the mobility needs of everyone to create thriving places



### ENGINEERING DESIGN AND DEVELOPMENT

Analyzing movement to improve connectivity and reduce environmental impacts



### EMERGING MOBILITY

Collaborating on solutions for people in a new era of mobility



### PARATRANSIT AND COMMUNITY TRANSPORTATION

Achieving service/cost performance and ADA compliance for demand-responsive services



### MOBILITY MANAGEMENT

Coordinating and enhancing an individual's access to more mobility options



### CAMPUS MOBILITY

Improving mobility choices at university, corporate, and medical workplaces



### PARKING AND DEMAND MANAGEMENT

Creating livable places with better management of parking supply and demand



### TRANSIT CORRIDORS

Building vibrant, equitable communities with high-quality transit at the center







# MULTIMODAL TRANSPORTATION PLANNING QUALIFICATIONS AND EXPERIENCE

We know how Arlington fits into its regional transportation context because we have worked with almost every community in Greater Boston. Every one of our local parking projects has evaluated economic development, housing equity, and multimodal access considerations. We know how to move the conversation when it comes to discussing the bigger picture of a given transportation context. The following map demonstrations our depth of experience and knowledge of the region.



## SUSTAINABILITY

Sustainability is a principle that cuts across all of our work. By developing balanced multimodal transportation systems, Nelson\Nygaard's work helps to create vibrant, active communities that are less dependent on single-occupancy vehicle travel. Our analytical tools allow communities, transit agencies, developers, and employers to measure the environmental impact of the transportation and land use choices they make.



## QUANTIFYING VEHICLE TRIP REDUCTION

Nelson\Nygaard has a long history of helping our clients understand the reduction in automobile trips that can result from multimodal transportation planning and compact land uses. For example, our URBEMIS model quantifies the benefits of mixed-use, transit-oriented and New Urbanist housing development. By quantifying reductions in traffic and parking demand, we help developments succeed with less parking and roadway infrastructure than conventional auto-oriented projects.



## GREENHOUSE GAS EMISSIONS ANALYSIS

By helping our clients understand how transportation systems affect travel behavior, we allow them to quantify the impact of their decisions on greenhouse gas emissions and global climate change. We also help our clients determine the most cost-effective ways to reduce emissions. We have helped diverse clients ranging from major transit agencies to universities and large employers understand the reductions in greenhouse gas emissions that can result from the policies they choose.

# EMERGING MOBILITY QUALIFICATIONS AND EXPERIENCE

Nelson\Nygaard understands and develops emerging mobility solutions to address mobility challenges and improve access for all. We craft solutions that are locally appropriate, fiscally sound, and immediately implementable. Our experience includes facilitating public-private partnerships for transit and paratransit services, improving first/last mile access, planning for shared mobility and analyzing trip data, updating curb management policies to reflect the changing demands for access, and developing taxi and ride-hailing regulation that balances the needs of all stakeholders.

## **INNOVATIVE TRANSPORTATION TECHNOLOGY**

The rapid emergence of new innovative transportation technology has already begun to shift transportation trends. Looking ahead, Nelson\Nygaard's goal is twofold: first, to help communities understand the full impact that these technologies have on mobility and local transportation goals, and second, to facilitate collaboration, idea sharing, and innovation in transportation.

## **DYNAMIC TRANSIT (E.G., TRANSLOC, RIDECELL)**

Dynamic transit has already begun to disrupt established demand-response scheduling with innovative technologies that allow for truly on-demand service and up-to-the-moment vehicle tracking. This has large implications for suburban transit systems in particular, but also for campus-based and paratransit systems.

## **RIDESOURCING (E.G., UBER, LYFT)**

We work as an advocate for communities and vulnerable populations to ensure that private companies put people first. While urban markets are well-established, we expect to work with suburban areas, campuses, and health/medical locations to allow transportation network companies to function as a benefit to the community, not a detriment.

## **AUTONOMOUS VEHICLES**

There is much speculation about how, where, and when fully autonomous vehicles will come to market. Big changes here can be expected in the next five years, and will likely have implications for parking, multi-mobile, transit, street design, and mobility. We have experts in each of these specialties who have solutions that strike a balance between community needs, market desires, and responsible regulation.

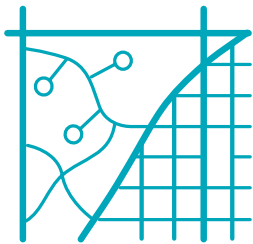
## **PARKING (E.G., LUXE VALET, ZIRX)**

New parking apps seek to gamify and commoditize parking. Big players have used technology to create publicly available, universal valets within zones. Our parking experts work with developers, employers, hospitals, and universities to ensure that these programs work in conjunction with existing transit, multimodal, and pedestrian infrastructure.

# BICYCLE AND PEDESTRIAN PLANNING

Whether the task is a town-wide plan, a multimodal neighborhood plan, or a specific intersection design, Nelson\Nygaard maximizes the attractiveness and safety of cycling and walking. We develop design requirements, quantify bicycle and pedestrian levels of service and, most importantly, balance the inevitable tradeoffs between non-motorized transportation, automobiles and other modes.

## MASTER PLANS



Working with cities, neighborhoods, and public parks, we identify bike and pedestrian investments that improve public safety and serve larger goals of economic development, social equity, and natural resource preservation.

## TRAFFIC CALMING AND STREET DESIGN



Street redesign demands a blend of technical rigor and political sensitivity. Nelson\Nygaard has successfully mediated projects where improvements stalled over competing interests, antiquated regulations, and inaccurate technical information. Using education, consensus building, and phased approaches to implementation, we have moved plans from dissension to adoption and execution.

## PEDESTRIAN AND BICYCLE PLANS



We help municipalities understand the complex matrix of changes to existing infrastructure, policies, and design guidelines needed for a functional pedestrian and bike network. We document weak linkages in existing pedestrian networks, prioritize locations for new infrastructure and amenities, and rewrite municipal codes and standards.

## EDUCATION AND OUTREACH PROGRAMS



Nelson\Nygaard has led a broad range of safety education programs including the award-winning Safe Routes to Schools in Marin County and New York City. We also conduct intensive workshops that teach municipal leaders about the core principles of effective pedestrian and bike planning.



# SUBCONSULTANT INFORMATION



IMPROVING COMMUNITIES TOGETHER

**BETA Group, Inc. (BETA)** was established in 1982 and has grown to become a regional leader in the fields of civil/site engineering, stormwater management, transportation, environmental engineering, landscape architecture, asset management/GIS, and environmental science.

BETA employs a staff of more than 165 engineers, scientists, certified soil evaluators, LEED professionals, landscape architects, planners, construction managers and support personnel. They take pride in a reputation for high quality technical services, on-time performance, and a strong commitment to meeting the needs of our clients.

Their goal is to have and maintain long-term relationships with clients. BETA's approach for successful projects is to establish close working relationships with their clients so that critical decisions become a collaborative effort. Their clients agree and the result is that the majority of their practice is repeat engagements with existing clients. The concept of providing quality technical services to maintain clients is ingrained in the fabric of BETA.



Landscape  
Architecture



Transportation  
Engineering



Civil  
Engineering



Stormwater  
Management



GIS/Asset  
Management



Environmental  
Engineering



Structural  
Engineering



Environmental  
Science



Construction  
Services





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## EXPERIENCE WORKING WITH MUNICIPALITIES

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We have completed similar projects for municipalities across the country.

Project experience examples provided are similar to the experience required to provide the Town of Arlington's Sustainable Transportation Plan. We have successfully completed similar projects within the last five years with public and private municipals agencies, and our most relevant similar experience is outlined in this section.





## NEWTON TRANSPORTATION STRATEGY

**Duration:** 2015–2017

**Client:** City of Newton

Newton continues to attract new residents due to the ease of its small-town scale, paired with ready connectivity to the resources and opportunities of the greater metropolitan area. Encapsulating Newton's challenges is a desire to welcome new residents, while maintaining the characteristics that make the City appealing: its distinct neighborhoods and villages, each with a unique sense of place. Concerned that the inevitable congestion associated with this growth will have negative impacts on Newton's high quality of life, the City sought to devise a forward-looking, multimodal transportation strategy.

Nelson\Nygaard was hired to develop not only a transportation strategy for Newton but also a citywide action plan to realize this vision. The firm created a public participation plan to engage Newton residents in the development of the strategy's goals and metrics, then provided opportunities for feedback on dynamic transportation demonstrations and initial recommendations. Nelson\Nygaard also produced an exhaustive data-driven survey of existing socioeconomic, environmental, and transportation conditions. This Fact Book visualizes and communicates this data and findings in a web-friendly format, intended for public audiences. The Transportation Strategy builds on these findings to offer recommendations for safe travel, transit and shared mobility, active transportation, parking management, and congestion reduction. This report concludes with an Action Implementation Plan, which prioritizes short-term, mid-term, and long-term steps, as well as the costs and leadership associated with each action item.

The City is currently working towards implementation of initial recommendations through its Capital Improvement Plan. Director of Transportation for the City, Nicole Freedman, said of the recommendations, "The items in the plan are very good, solid, and put us on a good track." The work of this project also dovetailed with the other Housing, Economic Development, and Parking strategy project efforts on which Nelson\Nygaard worked.



## MIAMI MODE SHARE

**Duration:** 2019–Ongoing

**Client:** City of Miami, FL

The City of Miami Beach’s 2017 Transportation Master Plan includes a mode share vision which sets mode share goals for the year 2035 to be achieved through an interconnected multi-modal network that is appealing, reliable and safe for all travelers.

While the City has set aspirational mode share goals, Nelson\Nygaard was contracted to develop a comprehensive methodology to collect, analyze, track, and provide an accurate mode share within the City of Miami Beach over time. Critical to the success of the project is developing a right-sized approach that will allow City staff to replicate the mode share analysis methodology by collecting, analyzing, and tracking data over time.

Unlike other mode share analyses completed to date, which typically focuses only on work trips, the Miami Beach Mode Share analysis will assess all trips—work, school, convenience, social, visitor—by all modes (auto, bike, pedestrian, transit, emerging options, etc.) To accomplish this task, Nelson\Nygaard is assessing and comparing all available datasets and methodologies for mode share tracking, developing the framework for selecting the final methods, and creating a performance monitoring plan that incorporates best and practical practices in mode estimation for the City’s ongoing use.

Ultimately, the mode share analysis will be used to measure the impact on mode choice as a result of non-SOV transportation initiatives completed within the city.



# BEVERLY PARKING STRATEGY AND MOBILITY HUB DESIGN

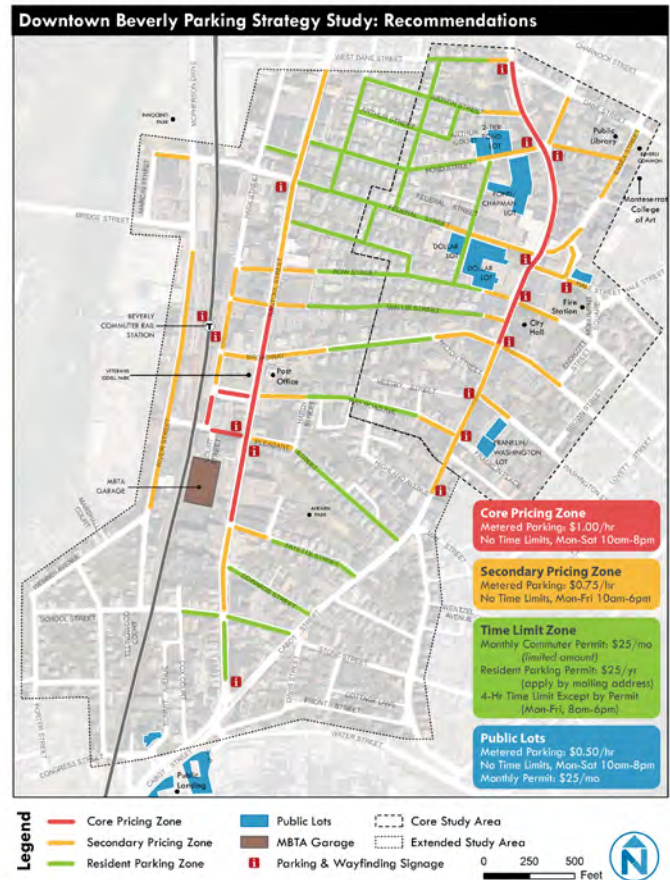
**Duration:** 2017–2018 and Ongoing

**Client:** City of Beverly, MA

In order to accommodate the changing transportation needs of downtown residents, employees, and visitors, the City of Beverly has proactively sought to create a more robust downtown transportation strategy to maintain a high-quality of life. One of these initiative was a comprehensive parking strategy for the downtown and TOD area, which Nelson\Nygaard completed and we are currently at work to design a mobility hub and public realm improvement plan to enhance first-\last-mile connectivity from the station to downtown, nearby job centers (like the 2+MSF Cummings Center), and residential neighborhoods.

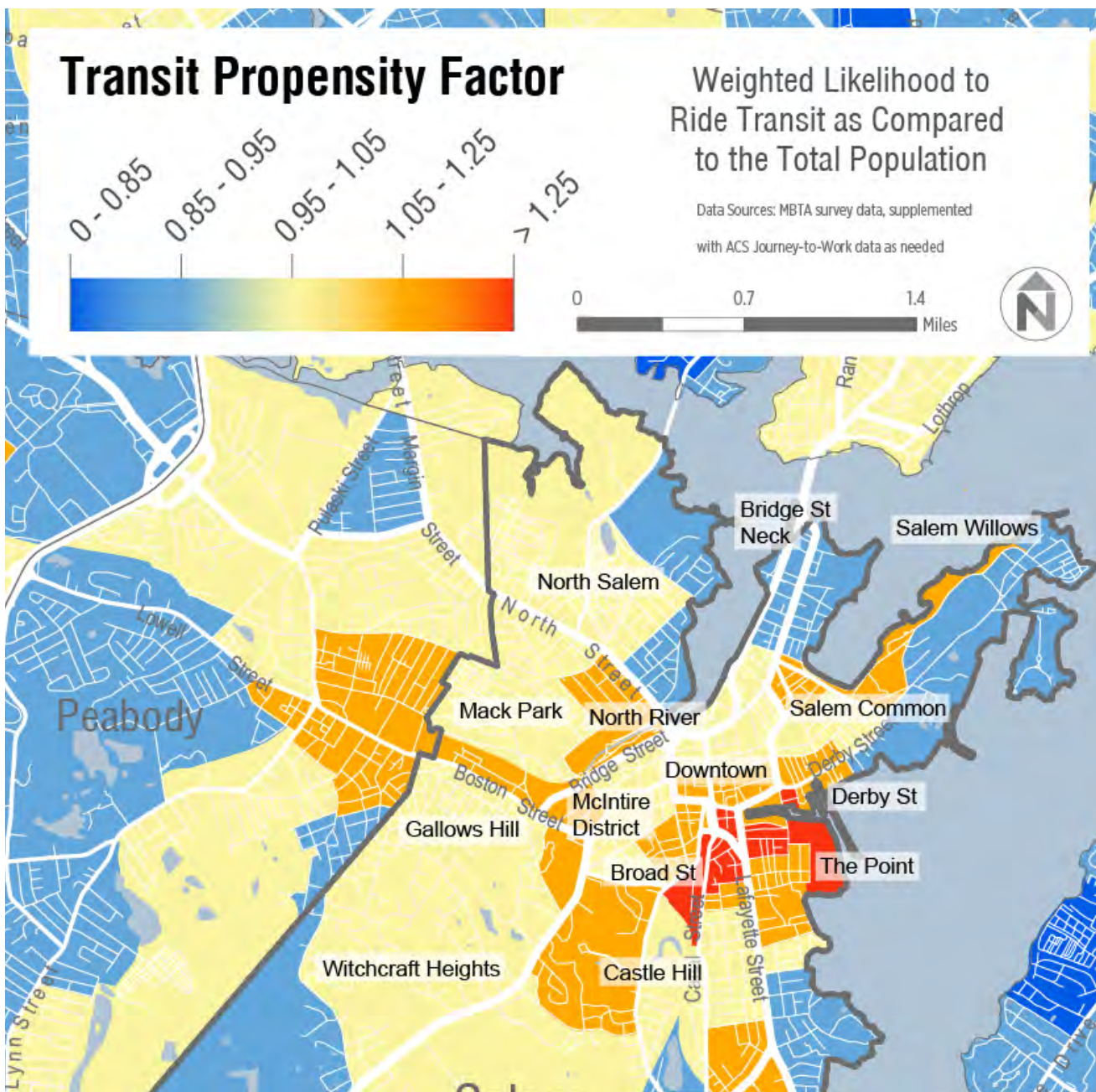
As a leader in downtown parking plans, Nelson\Nygaard was first hired to develop a data-driven, forward-thinking downtown parking strategy to balance the needs of the evening downtown visitor as well as the long-time resident. The result included not just a downtown parking management plan but a comprehensive set of strategies to improve downtown transportation for all users. Recommendations included updated parking regulations and payment mechanisms, new street designs, branded signing and wayfinding, and a updated residential parking permit structures. The City of Beverly expanded the original scope of the project beyond the downtown area to include the Beverly Depot TOD area to not only address parking concerns in the area, but more importantly, to enhance access to and from Cabot Street, the city's downtown spine.

The City is now working with Nelson\Nygaard to rethink public ROW around the Beverly Depot station with the goal of creating a multimodal mobility hub that will more intuitively and



comprehensively enhance first-\last-mile connectivity but also enhance the public realm to create a civic center for the area's growing residential population living in new, under construction, and proposed mixed-use developments. For the study, Nelson\Nygaard has assessed all existing transportation infrastructure, services, studies, and conducted a design charrette with key stakeholders. We are currently working with the city on the design phase of the project. When complete, the project will include a conceptual mobility hub design and strategic implementation plan to enhance connectivity for all modes to the area.



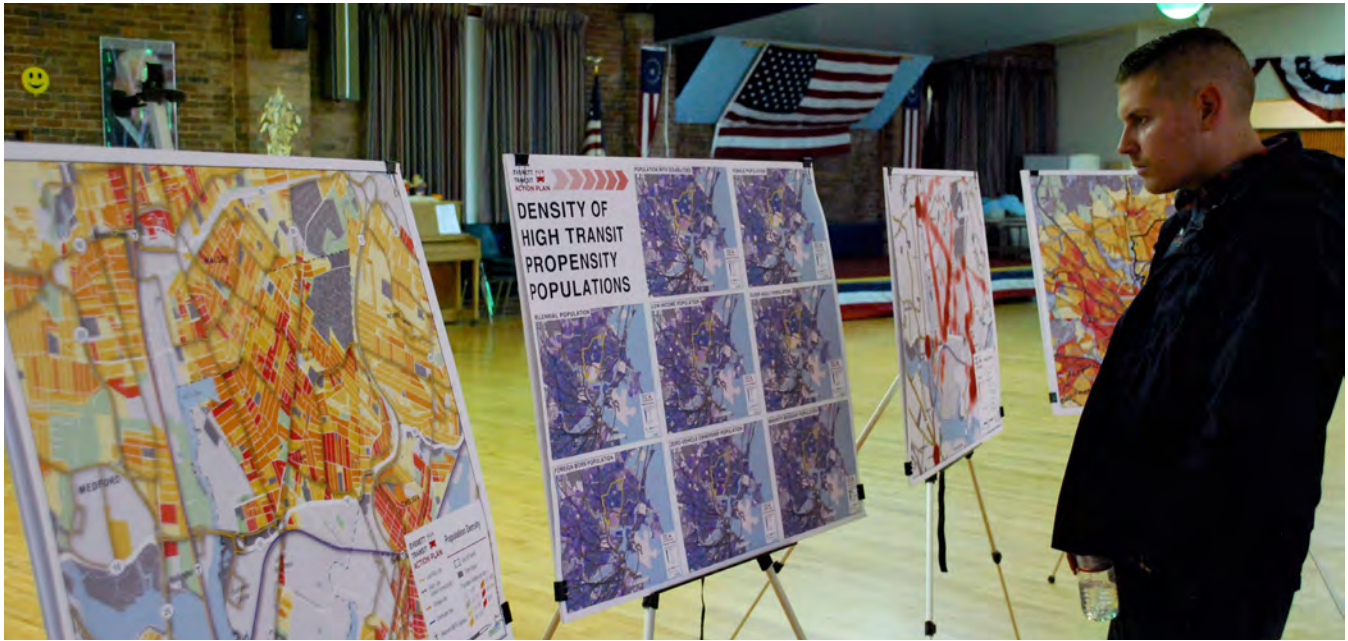


## SALEM ON-CALL TRANSPORTATION SERVICES AND SHUTTLE ANALYSIS

**Duration:** 2019-Ongoing

**Client:** City of Salem Traffic and Parking Department

Based on the success of its 2010 Downtown Parking Study, Nelson\Nygaard is currently providing on-call transportation and parking planning services to the City of Salem. Project work has included tactical transportation project planning, data collection and outreach strategies to ensure projects are carried out successfully; parking data collection and analysis support; and resident parking analysis and strategy development. For transit, Nelson\Nygaard's conducted an analysis of potential local intracity shuttle options, with a recommendation to pilot a micro-transit, on-demand node-based shuttle. The City will issue an RFP for this shuttle in the coming weeks.



## CITY OF EVERETT PROJECT EXPERIENCE

**Duration:** 2015–2016

**Client:** Massachusetts Department of Transportation/City of Everett

Since 2015, Nelson\Nygaard has supported the City of Everett in its efforts to foster a sustainable and equitable mobility network within its rapidly growing neighborhoods:

**Everett Transit Action Plan:** In 2015, under contract with MassDOT, Nelson\Nygaard developed a transformative long-range transit master plan designed to connect Everett's residents and jobs to the Greater Boston region. The project included an extensive market analysis, service analysis, and stakeholder outreach effort. Project recommendations focused on short-term changes to local bus routes, as well as larger scale projects including Silver Line extensions to Cambridge and Downtown Boston (now under planning by MassDOT). At the conclusion of the study, Nelson\Nygaard worked with the City of Everett and MassDOT to justify and plan the successful Broadway Bus Only Lane tactical transit pilot. Transit lead Dan Berez served as the deputy project manager for this effort, leading the technical work for all major project tasks, developing the final plan recommendations, and creating the service plan for the Broadway pilot.

**Everett Transportation Improvement and Management Plan:** In 2018, the City of Everett hired a team including Nelson\Nygaard to complete a citywide

multimodal master plan. The plan focused on developing a comprehensive mobility strategy that will enable Everett to support significant additional development without an increase in private car trips. Nelson\Nygaard created implantation plans for a series of "Transit Main Streets" that use transit priority interventions. Transit lead Dan Berez served as the overall Deputy Project Manager and NelsonNygaard lead for this effort.

**Everett Parking Study:** In 2019, the City of Everett engaged Nelson\Nygaard to complete a citywide parking management plan. The project initially focused on a rapid action program to maintain community access to parking as the Encore Casino began operation. Nelson\Nygaard then developed a residential and commercial permit program, and is currently working with the city to create specific code language, signage, an enforcement plan, and other associated policies. Matt Smith served as the project manager for this effort, with Dan Berez as a project advisor focused on the interaction between parking and transit priority interventions.



# ADDITIONAL SIMILAR RELEVANT PROJECT EXPERIENCE

In addition to the projects examples provided, we have completed numerous projects with similar scope and for similar public and private municipal agencies as the Town of Arlington. We have included additional project experience as examples of abilities to provide the Town of Arlington with a successful Sustainable Transportation Plan.

PROJECT NAME	CLIENT	DATES	RELEVANCE
Winchester Master Plan	Town of Winchester	2019–Ongoing	<ul style="list-style-type: none"> <li>Supporting a town-wide masterplan effort in a suburban driving-oriented context</li> <li>Integrating multimodal recommendations with land use planning</li> </ul>
Bentley University Transportation Demand Management Plan	Bentley University	2018–2019	<ul style="list-style-type: none"> <li>Access and transportation management plan to help a university in Waltham achieve charted sustainability goals</li> <li>Shuttle system redesign recommendations already implemented</li> </ul>
Lexington Parking Plan	Town of Lexington	2013–2014	<ul style="list-style-type: none"> <li>Curbside management plan with economic development focus</li> <li>Geared on implementation, with many recommendations already in place</li> </ul>
Concord Comprehensive Parking Study	Town of Concord	2012–2013	<ul style="list-style-type: none"> <li>Created recommendations to manage parking demand in Concord Center and West Concord, addressing unique commuter and tourist challenges</li> <li>Provided implementation support through wifi issues affecting meters and evaluating post-implementation to address strategy redesign accordingly</li> </ul>
Somerville Resident Parking Permit Analysis	City of Somerville	2018–2019	<ul style="list-style-type: none"> <li>Evaluating the citywide permit system policy as it relates to trip generation and impact on sustainable mode choices</li> <li>Examining trends in permit usage based on density and modeshare</li> <li>Recommending customized permit exceptions for transit-oriented development areas</li> </ul>
Boston Charles River Esplanade Pathway Improvement Plan	Esplanade Association	2018–2019	<ul style="list-style-type: none"> <li>Examined modal priority and safety on trails, trail intersections, and crossings within a limited right-of-way area</li> <li>Recommended strategies to address the above, prioritized for implementation</li> </ul>
Boston Transportation Department Implementation Tools	Boston Transportation Department	2019–Ongoing	<ul style="list-style-type: none"> <li>Performed organizational assessment to address and overcome hurdles to implementation of citywide transportation plan</li> <li>Designed decision-making tools for cross-department coordination on transportation tasks</li> </ul>



# SUBCONSULTANT BETA PROJECT EXPERIENCE

## Placemaking Historic Lexington Center / Battle Green Lexington, Massachusetts

### REFERENCE

John Livsey, PE  
Town Engineer  
201 Bedford Street  
Lexington, MA 02420  
781.274.8300 x8305

### SERVICES PROVIDED

- ✓ Planning
- ✓ Traffic Analysis/Modeling
- ✓ Extensive Streetscape Design
- ✓ Community Outreach

### PROJECT COST

Total Construction Cost \$6M

### PROJECT BENEFITS

- ✓ Enhanced Pedestrian Environment
- ✓ ADA Compliance
- ✓ Traffic Signal Upgrades
- ✓ Improved Street Lighting
- ✓ Historic Preservation



Lexington Town Center is a vibrant public place with a significant amount of commercial retail and institutional land use, as well as numerous national historic landmarks. Lexington Center was one of the first town centers to undergo a high level of pedestrian friendly streetscape treatment over 50 years ago. Through a very competitive qualification-based process, BETA was selected to undertake the comprehensive upgrade of the Center, as well as enhancements to the historic Battle Green.



BETA's in-house Landscape Architects and Traffic Engineers collaborated together and partnered with the Town's steering committee to develop an integrated plan of improvements that respects the history of the area, enhances the pedestrian experience, addresses ADA compliance, while meeting the transportation and commercial needs of the area. Given the

mix of vehicles, tour buses, transit buses, cyclists and pedestrians, BETA utilized VISSIM (a highly sophisticated micro simulation model) to assess alternatives. Additionally, the project required an extensive community outreach process.



# Massachusetts Avenue Traffic & Transportation Improvements

## Lexington, Massachusetts

### REFERENCE

William Hadley  
Director of Public Works  
201 Bedford Street  
Lexington, MA 02420  
781.274.8314

### SERVICES PROVIDED

- ✓ Planning
- ✓ Concept Development
- ✓ Preliminary Design
- ✓ Final Design

### PROJECT STATUS

Completed

### PROJECT COST

Total Construction Cost \$5M

### PROJECT BENEFITS

- ✓ Traffic Safety Improvements



Lexington Town Center is a vibrant public place with a significant amount of commercial retail and institutional land use, as well as numerous historic landmarks. The Center consists of three different sections, the Civic Area to the East, the Battle Green Area to the West and the Commercial Area in between.

The core project includes the Massachusetts Avenue corridor from the intersection of Woburn Street, west to including the intersection of Meriam Street, an overall distance of 2,400 LF. The effort includes traffic and transportation assessments beyond the limits of this core area, spanning from Woburn Street to Worthen Street to the west. These assessments encompass traffic operations at key locations, as well as the inclusion of parking, transit and tourism activities. The Project is executed in three distinct phases: Phase 1- Overall Traffic/Alternatives Study, Phase 2 - Development of 25% Plans for the core project area and Phase 3 Final Design.

The Battle Green area was assessed for the application of traffic calming measures, particularly given its magnetism for a high level of pedestrian activity. The intersection of Bedford Street and Massachusetts Avenue is a location of particular interest, particularly the pedestrian traffic, many of who are visitors and perhaps not as familiar with the area, interacting with various lines of traffic movement and negotiating somewhat unfavorable geometry.

The project involves coordination with many stakeholders and public presentations including meeting with the Historical Society, Historians, Chamber of Commerce, Economic Development Department and Tourism Committee.





**REFERENCE**  
John Livsey, PE  
Town Engineer  
Town of Lexington  
201 Bedford Street, Rm 202  
Lexington, MA 02420  
781.274.8300 x8305

**SERVICES PROVIDED**

- ✓ Assessments
- ✓ Neighborhood Outreach
- ✓ Construction Assistance

**PROJECT COST**  
Total Construction Cost \$250K

**PROJECT BENEFITS**

- ✓ Enhanced Safety
- ✓ Neighborhood Support





# Canton Street Neighborhood Traffic Calming

## Westwood, Massachusetts

### REFERENCE

Todd Korchin  
DPW Director  
Town of Westwood  
50 Carby Street  
Westwood, MA 02060  
781.251.2578

### SERVICES PROVIDED

- ✓ Traffic Assessment
- ✓ Neighborhood Outreach
- ✓ Follow-Up Study

### PROJECT STATUS

Completed August 2016

### PROJECT COST

Total Construction Cost \$1.5M

### PROJECT BENEFITS

- ✓ Enhanced Safety
- ✓ Improved Aesthetics



BETA has been working in the Town of Westwood, Massachusetts to develop a traffic calming plan designed to mitigate the traffic impact associated with University Station, a 4.5 million square foot mixed use development adjacent to the neighborhood. Resident concerns included an increase in cut-through traffic, heavy vehicle traffic, potential future increase in traffic volume, and higher vehicle speeds. BETA worked closely with the Town and neighborhood residents during the process.

Construction was completed in August of 2016 and BETA was retained to perform a follow-up study. The BETA team presented the results of this study at a very successful public meeting attended by close to 60 residents and Town personnel. The Town was incredibly happy with the final outcome as confirmed by Todd Korchin, Westwood Director of Public Works. "We just wanted to send a special thank you out to you and your team for the hard work and efforts throughout this project," he said. "The past couple of years haven't been the easiest and we truly appreciate all your help and assistance with this project."

The traffic calming area includes gateway design, speed humps, 11 intersection locations traffic calming devices with raised medians, landscape features, imprint and texture pavements, and 10 mid-block median island locations. In addition, work included providing vertical and sloped granite curb with streetscape features to add to aesthetics. One of the neighborhood roads is a Scenic Road and care was taken during the design to maintain the "scenic nature" of the roadway, while obtaining the goal of calming traffic. BETA's work also included extensive neighborhood meetings and posting plan materials to the Town website for resident reference.

Given the delicate neighborhood consensus building effort put in by the project team, it was rewarding to hear applause and positive reactions from the crowd. The success of this project is a direct result of extensive and close working relationships with the neighborhoods involved.









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# DETAILED WORK PLAN

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## PROJECT UNDERSTANDING AND APPROACH

Arlington's unique location puts it close enough to the Commonwealth's major employment centers to make the commute sustainable, but distant enough for the Town to have retained a close-knit, community feel. Crossing the Alewife Brook Parkway from Cambridge into Arlington brings with it a feeling of comfort and ease – the congestion lessens, conflicts are fewer, and more distance is perceived between streets and driveways. City becomes Town.

Arlington as a community is mainly residential, with the obvious exceptions in East Arlington, Arlington Center, and the Heights. Arlington residents tend to work nearby – Boston, Cambridge, Lexington, Burlington – but the travel time differences between driving and other modes of transportation is great, and the travel time reliability of transit is poor. There are three main reasons for this, each informing the Sustainable Transportation Plan:

1. Unlike many similar and nearby towns such as Newton, Belmont, and Winchester, Arlington does not have rapid transit service. The old trolley line has been lovingly converted to a multi-use trail and access to the nearest rapid transit investments (Alewife on the red line, West Medford commuter rail) can be difficult due to traffic congestion and parking supply.
2. Transit investments in Arlington have been more slanted towards operations (the provision of service) and less on capital (transit-only lanes, queue jumps, etc.), meaning that MBTA buses in Arlington serve the employment centers but operate in congested traffic. Buses serving Alewife are choked in congestion upon entry and exit, or they travel along Massachusetts Avenue (or Appleton Street) stopping frequently due to boardings, congestion, and stop lights.
3. Arlington's topography makes work-related walking and bicycling a challenge. Yes, Massachusetts Avenue is situated in a valley, but connections between Arlington and Belmont, or Arlington and Watertown, or even Arlington and Winchester, are a challenge. The Minuteman Path is a gem, but one used far too infrequently for utilitarian commute-related journeys. In part due to its large residential mass and part due to the high-quality school systems Arlington is a desirable place to raise a family. Yet the simple act of dropping children off at school and going to work is difficult to do for any mode of transportation other than driving. Many of the elementary schools—Brackett, Thompson, Dallin, Stratton—are located in the hilly sections of Arlington which make it difficult for walking or bicycling—and for time-consuming transit connections.

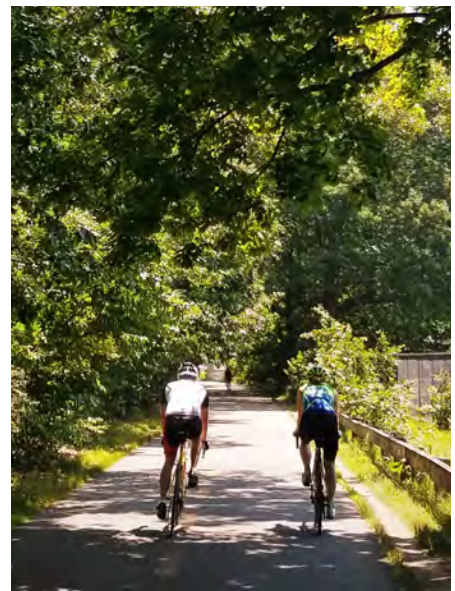


But Arlington's citizenry is committed to sustainability. From Sustainable Arlington to Green Arlington, the Arlington Sustainability Action Plan to Arlington Vision 2020—responding to the climate change challenge is near and dear to the hearts of many of Arlington's residents. Sustainability and community are themes at Town Day every year, and it's seen at Porchfest and Open Studios. The Sustainable Transportation Plan will provide the Town with a toolkit of transportation strategies that help align opportunity—to try something different—with the reality of busy lifestyles. Our approach to this Sustainable Transportation plan will be to assess and address how Arlington's attributes work within the town and fit into the regional context. Our process is largely informed by Arlington's history, and how its transportation system evolved over time.

In order to meet sustainability goals and address changing needs, this project must also identify transportation initiatives and policies that address congestion, increase person throughout and respond to emerging and rapidly changing mobility options. At the same time, changing demographic and social conditions—a generational shift of sorts with more families with school-aged children, as well as increasing empty nesters and seniors, and growing income equality—presents additional challenges to create a transportation system that best serves these diverse needs in a manner that is implementable, sustainable, and equitable. And while new residents are attracted to Arlington due to its proximity to the jobs and the regional highway network, Arlington is part of a larger regional transportation network, one that is increasingly strained by the need to move hundreds of thousands of workers to new jobs in a booming economy.

Our team lives and works in this community and those adjacent to it. Recent lessons learned from our work in nearby Newton and Winchester have looked to address the substantial through traffic both communities experience. We anticipate similar challenges in Arlington, where restaurants, local businesses, and entertainment venues are a regional draw. The charge of this plan is to understand these trends and to design a system that works as well for current as well as new residents and businesses.

In every project, we value transparency and interactive community and stakeholder involvement. Plans are more likely to success when people are fully involved in the process and when they reach consensus around a clear vision. Our process emphasizes actively engaging citizens throughout the process. We empower municipal leaders and citizens to visualize key tradeoffs (e.g., space, costs, and environmental impacts) to make better-informed transportation decisions.



# SCOPE OF SERVICES

## TASK A PROJECT INITIATION AND MANAGEMENT PLAN

### A.1 Kick Off Meeting

Nelson\Nygaard recommends beginning projects with a kickoff meeting to bring together Town staff, advisory committee members, and key members of the consulting team. The intent of this initial work task is to craft and finalize a framework for carrying out the Arlington Sustainable Transportation Plan project. In this meeting, we will discuss the final scope of work, clarify key roles, confirm project schedule, establish communication protocols.

A key agenda item at the kickoff meeting will be a strategy discussion for the project process. Given the abundance of transportation data and resources available, identifying initial priorities for analysis is essential to delivering the Town with a plan that provides an implementable strategy to address Arlington's specific transportation opportunities and challenges, not one that is either overly generic or unrealistic.

Prior to this meeting, Nelson\Nygaard will coordinate with Town staff to collect studies, data, and other information related to Arlington's transportation network. This will allow us to conduct brainstorming session during the kick-off meeting to guide areas of focus.

### A.2 Ongoing Communication

Regular communication between the Town of Arlington and the Nelson\Nygaard team is crucial to the success of this transportation planning process.

We propose holding team update calls every other week as needed to ensure the project remains on schedule and budget, to discuss any data or information gaps, and to discuss findings and strategy options as the project progresses.

## DELIVERABLES

- Final Scope and Schedule

## TASK B PUBLIC PARTICIPATION AND OUTREACH

### B.1 Outreach Support

As indicated in the RFP, Town staff and the Advisory Committee will conduct most of the outreach activity around the Sustainable Transportation Plan. The Nelson\Nygaard team will support these efforts through close coordination with Town staff to ensure that all plan findings, support materials and information needed is provided in advance. Should a higher level of participation from the consultant team be needed at these meetings, we will work with the Town to define the role and provide support on a time and materials basis.

To better ensure a successful planning process and outcome, we will coordinate with Town staff to make sure all communication is coordinated and consistent and outline expected outcomes of the engagement process. Based on the above, our efforts will focus on the following engagement tasks.

## B.2 Public Education Campaign and Outreach Materials

With input from Town staff and the Advisory Committee, Nelson\Nygaard will develop information and outreach materials to educate the public about the Sustainable Transportation Plan and how this project and other efforts in Arlington are focusing on multimodal transportation, sustainability, emerging mobility, equity and quality of life.

All materials developed will complement the Town-led public participation and outreach efforts of this project as well as to build support and momentum for the implementation of the final Sustainable Transportation Plan strategies.

For example, implementation of emerging mobility options (e.g. e-assist mobility devices, on-demand micro transit services) can be a significant paradigm shift for some residents, so our education materials will emphasize why it is important to balance all modes of transportation, explain how streets can be redesigned to accommodate all, or prioritize key modes; and how this balance is achieved. This task and the materials will be developed and refined in close collaboration with the Town and Advisory Committee.

## B.3 Interviews and Focus Groups

The Nelson\Nygaard team will conduct up to 8 interviews or focus groups with people and/or groups knowledgeable about transportation within Arlington and the region. Interviews and focus groups would ideally be scheduled over one or two days to maximize consultant time, and could include the following:

- Town Staff (including Planning and Community Development, Engineering, Department of Public Works)
- Elected officials
- Neighborhood Groups
- Local transportation advocates
- Residents and business owners
- State agencies

## B.4 Mobile Workshops

While the Town will lead the majority of engagement activities, it is important for the consultant team to receive direct input about the transportation strategies and concepts developed and an on-the-ground perspective. This is particularly important given that Arlington is a community with an active, engaged, and educated citizen base.

We recommend the Nelson\Nygaard team's outreach efforts to focus on two "mobile workshops" which will enable our team to reach residents and stakeholders while they are actively moving about and engaging within the community. We propose to integrate with existing events rather than create a separate outreach effort, such as Town Day, the Arlington Farmer's Market, Porch Fest or other events recommended by the Town or Advisory Committee.

Our mobile workshops will employ different engagement techniques, which could include interactive maps, guides, and touchpad-based input tools, likely in a visible pop-up tent that is easily transported by car. We have successfully employed this approach in Newton and Boston and other communities across the county.





**Our team will utilize mobile workshops to engage Arlington’s residents at festivals, farmer’s markets, or other events like Town Day**

## **B.5 Web-Based Engagement**

Public outreach workshops, while essential to the planning process, cannot provide ongoing interaction and may not be attended by a representative cross section of the community. An effective project website can help fill in the gaps for those who cannot or who choose not to attend meetings and provide up-to-date study information and solicit feedback in-between meetings.

We will collaborate with Town staff to support a project website and (optional) social media communication strategy. Web-based engagement will provide the public a fast and simple way to keep current with the latest project updates.

**These online and mobile communication options provide the Town and our team an ongoing mechanism to elicit public feedback and support.**

For example, Nelson\Nygaard has used various interactive website applications including online surveys through Survey Monkey, visual preference polling, and Wikimaps, among others.

## WHAT'S YOUR TRANSPORTATION VISION?

**Missed the Newton-in-Motion visioning workshop? We want to hear from you -- online! Surveys are open until Monday, February 29.**

Visit the website at

**[www.newtonma.gov/transportationstrategy](http://www.newtonma.gov/transportationstrategy)**

and share your:

- goals
- questions
- areas of concern
- and more!



**SAVE THE DATE FOR FUTURE WORKSHOPS:**

Week of April 4th, 2016 and Week of June 13th, 2016

**All of our projects are grounded in broad-based public engagement. We will partner with you to customize the right outreach approach for Arlington.**

The purpose of the web-based engagement is to:

- Provide a single (website) location for study announcements, updates, contact information, meeting results, and work products
- Educate the community on the state of transportation in Arlington through graphical reports, infographics, and storytelling, through photographs and/or videos
- Hear from the community on issues and opportunities, priorities, and preferences through an interactive interface, including Wikimaps, social media, polling, and more.

## DELIVERABLES

- **Meeting and Interview Summaries**
- **Memorandum: Public Outreach Strategy**

## TASK C EXISTING CONDITIONS AND DATA ANALYSIS

The challenge with analyzing transportation data is the vast quantities of numerical and other data available, much of which may not be particularly relevant in assessing Arlington's specific transportation network needs. As such and as described in Task A, we believe the best approach is an efficient and focused existing conditions assessment that identifies, analyzes and communicates data findings most relevant to Arlington's transportation network based on input from staff, the Advisory Committee and feedback received through public engagement.

To perform this analysis, Nelson\Nygaard will develop an overview—a database—highlighting available data and information as well as data gaps, upon receiving notice to proceed on the project. This will be presented at the Kick-Off meeting for discussion.

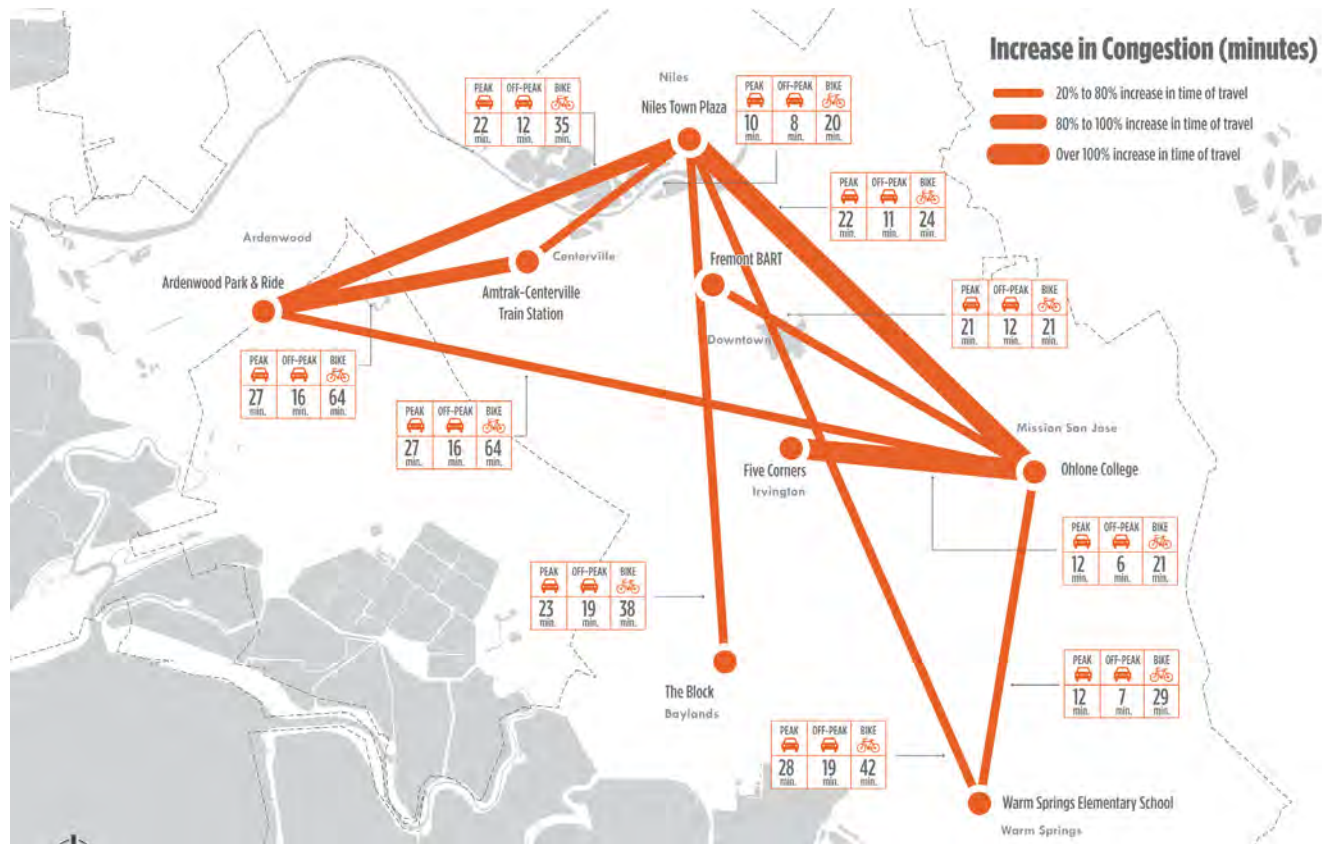
Based on our experience working on community transportation planning projects, our analysis will include an overview (and subsequent focus on certain element) of the following:

### C.1 Review of Previous Planning and Initiatives

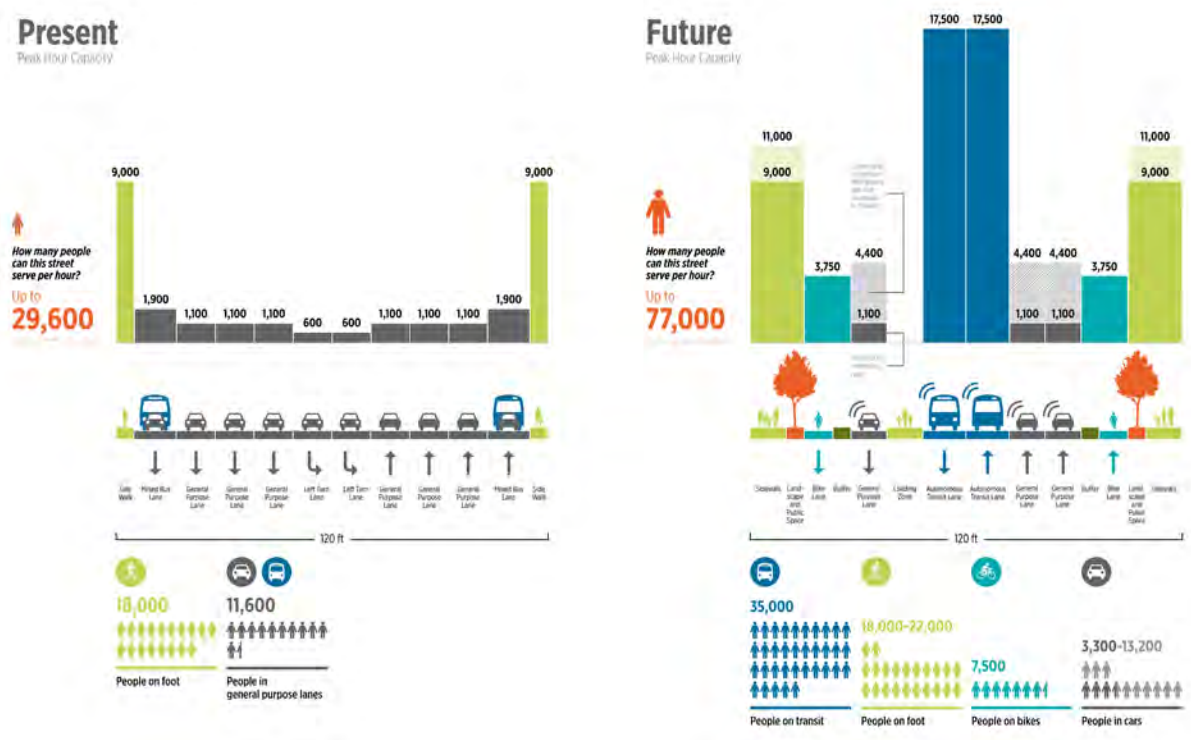
Members of the Nelson\Nygaard team will begin assembling and reviewing relevant planning documents that provide insight into existing transportation needs and priorities. For example, transportation strategies and policy recommendations outlined in the 2015 Comprehensive Plan will be assessed, as will outcomes from recent transportation projects and initiatives (e.g., Mass Ave. bus priority lanes). The purpose of this broad data review step is three-fold:

- Assess previous transportation planning priorities and initiatives and the results of those efforts;
- Review projects underway, in planning phases, or those already funded in the CIP, to provide understanding about existing and near-term Town priorities;
- Assess initiatives and how they relate to a regional context and how Arlington fits into the larger regional transportation network, economy and planning efforts, particularly in terms of housing and jobs access (equity), MBTA bus service (and Alewife Red Line service), traffic and circulation, and more.





Our visual communications team synthesizes multiple data points to help communities see a clear picture of their transportation network and understand how it relates to moving people—no matter how they travel—and to improving their quality of life.



## C.2 Existing and Potential Future Conditions, Data Collection, and Analysis

### Key Economic, Social, Land Use and Environmental Trends

Nelson\Nygaard will spatially analyze (largely through GIS mapping) Arlington's population, economic attributes, land use patterns and the environment within the context of the transportation network. This will provide insight into how equitably the existing transportation network serves Arlington's current and future residents (where they live), connects them to jobs and opportunity, and how it impacts the environment.

Social indicators such as income distribution, ethnicity, obesity, percentage of household budget spent on transportation will be assessed. Walk Score and Bike Score data may be used for this analysis.

For Arlington's economy, we will assess existing and projected employment patterns and characteristics, transit service options, commercial concentrations, truck/freight movement and more.

The team will consider how growth projections (e.g., population, employment, development) are anticipated to change over time.

### Transportation Network Assessment

Building on geospatial information identified, local and state datasets, as well as field observations where necessary, Nelson\Nygaard will map and assess Arlington's existing transportation network including the following:

- Roadway characteristics including functional classification, congestion, and connectivity
- Pedestrian and bicycle infrastructure including existing and proposed facilities and amenities (e.g. paths, lanes, bike racks)
- Transit service including existing routes, stops and amenities; as well as ridership patterns; regional connectivity; and overall system strengths and weaknesses; quality of service (QOS), and more
- Journey to work data to understand how and where Arlington's residents and workers are going to or coming from and how it relates to regional transportation conditions and initiatives
- Curbside use including parking, commercial loading, passenger drop-off and pick-up, transit use/stops and more
- Crash data, clusters and other safety data by mode

The above will enable the Project Team to better understand how Arlington's existing transportation network is able to serve all current and future users by mode, identify critical gaps in connectivity or transit accessibility, and other potential opportunities and challenges that arise from the analysis.





**Crash density mapping will help us to identify locations where strategies to enhance safety should be prioritized**



**We will identify connectivity gaps and mobility impediments for all users. For example, we will identify streets not designed to accommodate all users**



## Multimodal Analysis

Based on feedback received by Town staff and the Advisory Committee, the Nelson\Nygaard team will conduct a more targeted and detailed multimodal analysis of key system elements, and develop transportation performance indicators related to identified project priority areas and goals. Depending on the initial findings, this could include an assessment of the following:

- Transportation Service Gaps
  - » Vehicular
  - » Transit
  - » Bike and Ped (including bike parking)
- Accessibility Gaps
  - » ADA compliance
  - » Council on Aging services
- Quality of service
  - » Bicycle compatibility index (BCI)
  - » Pedestrian network quality
  - » Transit reliability
- Comfort of service
  - » Transit amenities
  - » Transit technology
  - » Tree coverage and other streetscaping shade/wind effects
  - » Lighting
- Safety
  - » Speed limits
  - » Road diets
  - » Pedestrian and bicycle needs
- Infrastructure Needs
  - » Roadway space by mode, including effects of autonomous vehicles
  - » Opportunity cost associated with using street space for transportation use versus other potential uses of public space
- Mode split trends
- The curb
  - » Assess parking supply and demand
  - » Parking utilization and development trends/change over time
  - » Changing curb demand/needs (e.g., drop-off/pick-up, delivery, active transportation, bus priority, emerging mobility options)
- Emerging mobility integration
  - » E-assist devices
  - » TNCs
  - » Car share
  - » Microtransit

### C.3 Mobility Fact Book

We will integrate findings from the above analyses into a Mobility Fact Book, a highly graphical alternative to often unwieldy and overwhelming technical existing conditions reports.

**The Fact Book will be a product of field study and review of existing and anticipated future conditions completed in the subtasks above.**

It will be designed to provide key findings with a graphical, internet-ready focus, employing maps, illustrations, and photo imagery, with sample details/facts for areas where particular aspects of the transportation system's performance, operations, or infrastructure should be highlighted as call-out examples.

The Fact Book will serve as the foundation to inform transportation vision and strategies for the Sustainable Transportation Plan. We will submit this in draft form and incorporate up to two rounds of consolidated, non-conflicting Town edits.

Once identified and assessed, we will present all information in a compelling and easy-to-understand manner (see Task B.2.S. for more). The purpose of collecting the transportation data is three-fold:

- To educate and share with the public the state of transportation and related factors in Arlington (including regional connectivity)
- To identify key transportation network assets, issues/gaps and opportunities, and
- To create a baseline from which the Town can measure future progress

## DELIVERABLES

- ❑ Database of GIS, datasets, etc.
- ❑ Mobility Fact Book, including Town-wide maps of key findings.

## TASK D VISIONING AND TRACKING

### D.1 Transportation System Vision and Principles

Given the complexity and rapidly changing characteristics of Arlington's and the region's transportation network, developing a shared, community wide understanding and future vision for what that network will be is paramount to the successful completion of this process. We think of this as where the "magic" happens, where local experience and perceptions, community aspirations and analysis findings by the project team intersect and are discussed with one desired outcome—a shared vision that will guide transportation planning and inform plan recommendations.

32 The public vision process will require prioritizing community-based goals and objectives. As the consultant team working with the Town to develop this strategy, we need to understand what is most important to Arlington's residents and stakeholders? What do they find most challenging about getting around Arlington? What best serves their transportation needs, and what impedes their movement? How does transportation impact their daily life—be it getting to work, to basic services and needs, or getting their children to school safely and on time. What should be done now, in 5 years, or later?

This is why it is important for the consultant team to develop educational materials and present findings in clear, concise, and easily digestible formats. To develop a vision, the public needs to comprehend the complex nature of how the components of its multimodal transportation network function as one, so that project goals, once set, lead to implementable strategies and outcomes that can be measured based on evaluation criteria/metrics developed as part of this process (e.g. time savings, mode split, health impacts) and based on best practice research.

Based on feedback received through the public visioning process—which the Town will lead as part of its engagement strategy and could include the first of two mobile workshops—the Nelson\Nygaard team will create a vision for what transportation looks like in the next 5 to 25 years within Arlington. The vision document should be bold yet broad, and relate to expected future investments and practical, achievable solutions.

This document will be designed to be accessible to all, particularly residents and stakeholders not familiar with national trends in sustainable transportation, written in jargon-free language and including examples and graphics that explain basic transportation ideas. The vision document can be printed and structured as an easily viewable, adaptable online resource, and will include infographics, maps, and other visuals.

## D.2 Tracking Progress

While creating a vision is an important to the process, providing methods for the Town to track the Sustainable Transportation Plan's progress is an essential component of this effort. And given the long-term nature of the project, requires more than a check box approach.

There are different options and methods for tracking progress. The Nelson\Nygaard team will work with Town staff and the Advisory Committee to develop a methodology that can be completed with reasonable effort by Town staff over time. For example, one potential strategy could be to develop a report format with set metrics tied to various goals that could reported annually at Town Meeting. This could include an annual crash analysis to see if the network is becoming safer; an annual analysis of average trip times (up or down); or automobile ownership trends. Another could be to create a replicable methodology to track mode share over time. This would provide the Town with a way to track the effectiveness of the policies and initiatives recommended to shift mode choice over time.

### DELIVERABLES

- ❑ Vision Document including Community Goals
- ❑ Memorandum: Data metrics and/or tracking methodology

## TASK E DRAFT AND FINAL SUSTAINABLE TRANSPORTATION PLAN

The Sustainable Transportation Plan brings together all work done to date, and officially documents all policies, programs, and projects to achieve the plan vision and enhance connectivity and transportation choice town wide. The plan must reflect both the community goals and priorities as well as real world conditions and implementable projects.

We propose a plan focused on community priorities and initiatives presented as stand-alone strategy and implementation documents that can be used separately or as a complete package. This will ensure that the plan is user-friendly and succession-proof over time. Each will detail the strategy and how it helps to achieve the transportation vision, who is responsible to implement, an approximate timeframe to complete, potential funding programs, and more. We will also provide guidance on how to implement pilot and tactical solutions that provide the Town with potential options to more cost-effectively test initiatives on a short-term or semi-permanent basis.

This format will provide the Town with a strategic document to guide implementation in a manner that is realistic and flexible given the many internal and external influences that affect transportation implementation such as funding limitations, shifting State agency priorities, public opinion, local budgeting/Town Meeting allocations, and more.

### E.1 Draft Sustainable Transportation Plan

Nelson\Nygaard will develop a draft plan and implementation strategy that enhances the current transportation network, addresses critical connectivity and service gaps, and provides strategies to adapt to changing mobility needs and services. Strategies and initiatives are likely to be organized by topic - e.g. complete streets, active transportation, transit, and emerging transportation. Although presented by topic area, all strategies will reflect complete streets practices, and look to prioritize person throughput and comfort over vehicle throughput to ensure Arlington's limited, and thus highly valued, transportation right-of-way is used most effectively.



## E.1.1 Motor Vehicle and Roadway Design Strategies

Nelson\Nygaard's approach to motor vehicle planning and design is unique. Rather than treating streets solely as transportation corridors, we recognize that "families" of street types are as much dependent on adjacent land uses and their connective function as they are their role in moving people. This family approach underlines our successful work in numerous towns and cities that have rejected blunt terms like "arterial" and "collector" to embrace family names like "neighborhood," "community," and "business" contribute to the overall viability of the Sustainable Transportation Plan.

We will look to develop policies and projects to apply to various road types based on a variety of characteristics. Supportive curbside policies and appropriate transportation demand management strategies will also be explored.

Based on the established vision and project goals, potential strategies could address the following:

- Complete street design to encourage non-auto use (see Active Transportation and Transit Strategies)
- Addressing congestion through improving corridors and intersections most critical to maintaining appropriate traffic flows;
- Vision Zero policies and design initiatives that enhance safety and eliminate traffic fatalities.
- Initiatives that prioritize total person throughput, not vehicle throughput.
- Curbside strategies that balance parking supply and demand with commercial and service loading and delivery, active transportation use, transit amenities and emerging mobility options.
- Placemaking enhancements including shade trees to improve comfort and reduce heat island effects; wayfinding (to parking, key destinations, and more); and other strategies.

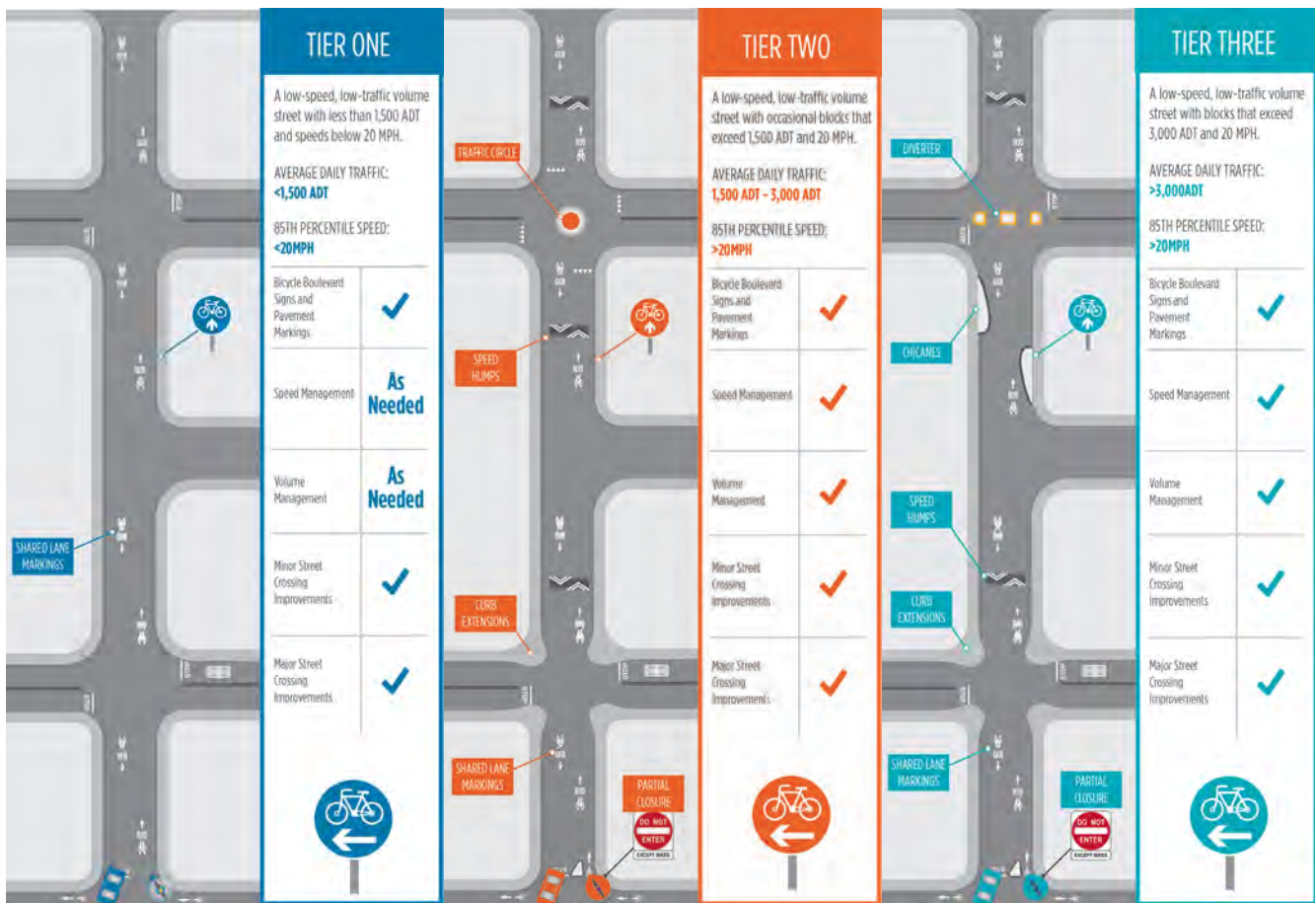
## Street Concepts

Based on the families of streets, and led by team member Beta Group, we will develop up to three street sections and conceptual designs for how roadways can be adapted to prioritize person throughput, enhance safety, and prioritize placemaking and quality of life.

## D.1.2 Active Transportation Strategies

Both anecdotal and research-related evidence continue to show that bicyclists, runners and walkers want and need facilities separated from motor vehicles. Trails, greenways, bikeways (e.g. Minuteman Bikeway), well-designed public spaces, bicycle lanes, and wide sidewalks and visible street crossings attract a diverse range of people age 8-to-80, who walk and bike for transportation and recreation.

Recommended active transportation strategies and projects will look to develop specific projects to improve walking and biking access and safety (including Safe Routes to School) with a focus on connections to existing multiuse paths, bike lanes, transit services, schools (including Safe Routes to School programs), commercial corridors (e.g. Mass Ave.) and other destinations beyond Town borders (e.g. Alewife Station). Adding more of these facilities, particularly those feeding into existing facilities to fill the gaps, and that prioritize pedestrian and bike safety, will help improve the town's non-motorized mode share, enhance public health and mitigate environmental impact of single-occupant vehicle trips.



We give communities clear options for choosing investments in their streets. This graphic illustrates the tradeoffs for different traffic calming options to ensure that sustainable choices feel safe for people of all ages.

### D.1.3 Transit Strategies

Enhanced transit options hold the greatest potential to move more people more efficiently and more equitably than other modes. Potential recommendations to enhance transit services—both within Arlington and within the region—will be developed. Potential strategies could include additional bus priority lanes (e.g. along Broadway), enhanced transit amenities including shelters, information availability, public Wi-Fi, and more. Given poor east-west connectivity, as well as aging populations and challenging topography, emerging intra-town transit options such as on-demand micro-transit, ride hailing service partnerships, may also be included.

## D.2 Mobile Workshops

We propose hosting at least one (or both) of the mobile workshops after the draft plan is delivered. The opportunity to present key concepts, policy initiatives and project priorities to the public for their input is critical not only to developing the final plan priorities, but to future implementation efforts. Providing the opportunity for stakeholders to engage and critique plan elements can help to build support for the plan and its initiatives.

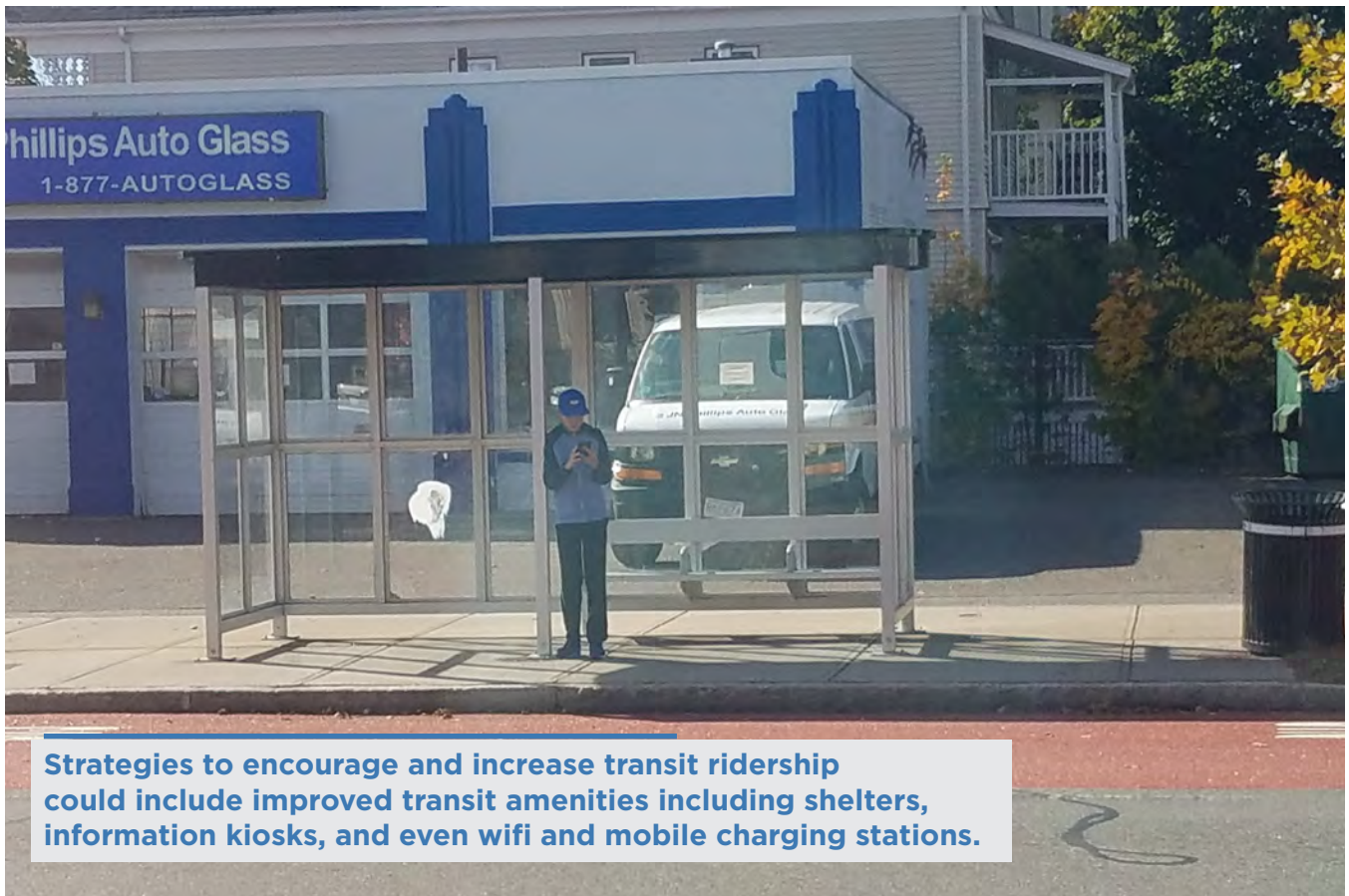
## D.3 Final Sustainable Transportation Plan

Based on public input, and one set of consolidated and non-conflicting comments from Town staff and the Advisory Committee, the Nelson\Nygaard team will revise the Sustainable Transportation Plan document as needed. The result will be a plan and implementation strategy that is fully based on community priorities and implementable strategies to improve how Arlington's residents, workers and visitors move to, from and through the community.

### DELIVERABLES

- Draft Sustainable Transportation Strategy
- Final Sustainable Transportation Strategy





**Strategies to encourage and increase transit ridership could include improved transit amenities including shelters, information kiosks, and even wifi and mobile charging stations.**



**Recommendations to enhance safety may include higher cost intersection redesigns as well as lower cost tactical strategies similar in spirit to Arlington's successful introduction of safety flags that enhance pedestrian safety through enhanced visibility in crosswalks.**  
[Credit: Boston Globe]

## IMPLEMENTING THE SUSTAINABLE TRANSPORTATION PLAN

Successful implementation of any comprehensive planning strategy is the greatest challenge for any municipality. As such, the Sustainable Transportation Plan cannot run the risk of being an end point, regardless of how well-developed, documented, and implementable it might appear.

The Nelson\Nygaard team regularly sees its plans implemented because we do not allow ourselves to work impractically. Far too many plans become visionary without enough ability to hit the streets running.

While the Sustainable Transportation Plan must have a forward-thinking vision that ensures it is only the beginning of a process, we are well-grounded in the realities that Town staff, elected officials, business owners, and landowners face every day.

The implementation strategy, steps, and timelines will be grounded in a sequence that is realistic, given time, budgets, and regulatory constraints. Nonetheless, we expect that strategy development will create the kind of motivation and support from all internal and external stakeholders necessary to keep implementation on track. As such, all strategies within the Sustainable Transportation Plan will include the following components:

- Timeframe and phasing for quick wins, medium-term, and long-term implementation
- Responsible parties (primary and secondary), including both Town departments and committees, and non-government organizations
- Order-of-magnitude costs for capital and ongoing maintenance

Finally, given the many competing funding needs within a community, ensuring that key transportation initiatives are included within the Town's Capital Improvement Program (CIP) budget process is critical to implementing projects in a timely manner. Team members from both Nelson\Nygaard and Beta Group have experience developing CIPs, both for municipal transportation departments and as part of the municipal budgeting process.

# PROJECT SCHEDULE

Our proposed project schedule outlines the anticipated timeline for completion of tasks as presented in our approach to the scope of services provided.

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M = Meeting

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# STAFF EXPERIENCE

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## Meet your team of experts.

To ensure our management approach is executed properly and meets the needs of this Sustainable Transportation Plan, we have assembled a team of experts with relevant experience in developing a wide-range of transportation planning projects in cities across the United States. Our proposed key staff is presented here with short bios followed by complete resumes.

## Staff Capacity To Complete the Plan.

Our staff is fully available and capable of performing the work as mentioned in the RFP. Our staff, although working on a few projects at once, are trained to balance the needs of clients. We pride ourselves on getting our work done, and a good portion of our work is from repeat clients because they are happy with the quality of our work and our ability to meet deadlines.

Our firm's QA/QC control protocols specify work procedures that assist in establishing realistic scope of services, work tasks, schedule, fees, and allows us to ensure staff are available and projects are staffed appropriately.



## MATT SMITH, PRINCIPAL PROJECT MANAGER & CURBSIDE MANAGEMENT LEAD

Matt helps build vibrant communities by aligning transportation and land use practices that enhance connectivity, mobility, economic opportunity, and sustainability.

Matt Smith has more than a decade of public and private-sector experience in transportation and urban planning, working closely with municipalities, state and regional agencies, and private-sector clients on transportation initiatives, redevelopment planning, economic analyses, and environmental assessments. His work in multimodal and parking management planning has helped communities to develop efficient, connected, and safe transportation networks for all users—pedestrians, bicyclists, transit riders, and drivers.

Matt recently joined Nelson\Nygaard's Boston office after serving as Director of Traffic and Parking for the City of Salem, MA, where he led implementation of Nelson\Nygaard's Downtown Parking Plan, the city's Complete Streets and Neighborhood Traffic Calming programs and successfully launched and grew the city's bike share program.



## BILL SCHWARTZ, PRINCIPAL PRINCIPAL-IN-CHARGE

Bill understands that true mobility is rooted in equity and independence.

Bill is a multimodal transportation specialist with more than 35 years of professional consulting experience. His work has covered a broad range of transportation topics for clients throughout the U.S. He's passionate about helping people travel independently and seamlessly, particularly people whose travel options don't include driving.

Bill is an expert in Americans with Disabilities Act (ADA) compliance and in active transportation. He is a strong advocate for helping people plan for their driving retirement. Bill led the 2008 Massachusetts Statewide Bicycle Plan, helping to implement the Bay State Greenway bicycle network in the Pioneer Valley, and was planning lead for MassDOT's Safe Routes to School infrastructure program, including Dallin Elementary in Arlington.





## **ALYSON FLETCHER, SENIOR ASSOCIATE TRANSPORTATION, MULTIMODAL, AND OUTREACH LEAD**

Alyson is an expert in bridging planning and design for walkable, bikeable communities.

Alyson specializes in street design and active transportation, including walkability studies, multimodal corridor plans, trail safety plans, and campus master plans. She has an inter-disciplinary background in architecture, planning and landscape architecture which allows her to blend an attention to detail with seeing the bigger picture in a project's context.

Alyson was the Deputy Project Manager for the Newton Transportation Strategy project, where she lead all data analytics and outreach processes. Alyson was also the lead planner for the Arlington Center Parking Plan, running field work, mapping, public engagement, and report development. Alyson is a regular presenter on sustainable transportation best practices, including presentations at Vision Zero, ITE's Urban Streets Symposium, Velo-City, Rail-volution, and the ASLA National Conference.



## **SUZIE BIRDSSELL, ASSOCIATE GIS LEAD AND TRANSIT ANALYST**

Suzie's skillset includes spatial and data analysis, cartography, and designs.

Suzanne Birdsell specializes in geospatial analysis, transit planning and commute pattern analysis. She has over four years of experience applying spatial and data analysis to transit systems and travel behavior and creating new ways to measure feasibility and demand particularly for high capacity transit, commuter markets, and emerging markets. She has extensive experience using survey results and integrating local, regional, and national datasets as well as local feedback to gain comprehensive insight into transit feasibility. Her skillset includes spatial and data analysis, cartography, and design. Her background in urban geography and spatial sociology provides key insights into the way space and mobility can be designed to improve the lives of marginalized groups.



## DAN BEREZ, ASSOCIATE TRANSIT AND EMERGING MOBILITY

Dan helps make public and private mobility options work for everyone.

Dan helps make public and private mobility options work for everyone. He specializes in the intersection of transit and emerging mobility, facilitating collaboration between cities, transit agencies, and mobility service providers to reduce reliance on private vehicles. His projects have supported clients in reversing ridership declines, implementing nationally-recognized tactical urbanism projects, and engaging with customers that are often left out of the transportation decision-making process. Locally, Dan has worked extensively with MassDOT, the MBTA, and the City of Everett to enhance local bus service – including planning support for the Broadway bus lane pilot and leading the service analysis for phase one of the Better Bus Project.



## JACOB DEGEAL, ASSOCIATE VISUAL COMMUNICATIONS

Jacob understands that ideas are made better through collaboration and teamwork.

Jacob has over a decade of experience in design. Working as an interactive web designer and later as a design manager, he understands that ideas are made better through collaboration and teamwork. A bicycle commuter since childhood, Jacob co-founded a bike advocacy organization in Bloomington-Normal Illinois, promoting the bicycle for everyday transportation. It was through this work that Jacob became passionate about transportation planning, public participation, and the power of design to create human-centered transportation solutions that work.



## KIEN HO, PE, PTOE, BETA TRAFFIC ENGINEER

Kien is an IMSA Certified Signal Inspector and has extensive experience in optimizing and updating traffic signal systems.

Kien has over 35 years of experience specializing in all aspects of traffic engineering and signal/system design, peer review, and roadway/highway transportation planning and design. He has successfully managed numerous oncall type consulting services to communities and state agencies. Kien has prepared designs for municipal intersection and roadway projects including traffic signals, traffic calming applications, traffic management plans, and the application of Intelligent Transportation Systems.

Kien has authored and published technical papers related to traffic analysis techniques. His recent relevant traffic signal experience includes an Adaptive Traffic Signal System for Wellesley and the optimization of signal locations in Westwood, Worchester, Taunton, Brookline, and Natick.



## JAKLYN CENTRACCHIO, PE, BETA TRAFFIC ENGINEER

Jaklyn has 17 years of experience in traffic engineering and has developed a diverse background in many phases of transportation engineering.

Jaklyn's background includes substantial experience with traffic capacity analysis, Road Safety Audits, traffic impact studies, signal warrant studies, parking and traffic circulation studies, pedestrian safety studies, conducting peer reviews for various municipalities, traffic signal design, and preparation of traffic calming studies, signing, and pavement marking plans.

Some of Jaklyn's most recent and notable work includes assisting with a Road Safety Audit in Mansfield, MA; the technical memorandum and design plans for five intersection Adaptive Signal Project; preparation of a crosswalk evaluation for the entire Town of Westwood; final design plans for a three neighborhood traffic calming project in Westwood, MA; and the preparation of a pedestrian safety study along Memorial Drive in Cambridge, MA.





## **TYLER DE RUITER, PE, PTOE, BETA** **PROJECT ENGINEER**

Tyler has nine years of experience in transportation engineering with a focus in traffic engineering and design.

Tyler's background includes the peer review of traffic impact and access reports; development and design of traffic calming studies; development of functional design reports and other transportation studies; preparation of technical design plans; preparation of transportation access and safety evaluations for schools; and assistance with MassDOT Complete Streets Tier I, II, and III.

Recently, Tyler has assisted the Town of Nantucket in the evaluation and planning of a newly acquired Amelia Drive, a narrow commercial street. The planning of this street, and the surrounding neighborhood, involved evaluating curb use and vehicle operations and pedestrian/bicycle accessibility and safety with on- and off-street parking.



## **SCOTT RIDDER, RLA, ASLA, LEED AP, BETA** **TRANSPORTATION PLANNER**

Scott has more than 30 years of professional experience and has worked on numerous transportation and site development projects throughout New England.

Scott's design and technical expertise includes a broad-variety of project types including streetscapes and urban design, historical roadways, pedestrian pathways, and bike paths.

Scott is currently involved in the redevelopment of Lexington's downtown streetscape along Mass Avenue known as Battle Road. This historic project site connects the Battle Green to the Commercial and Civic cores. Wide sidewalks with various seating types and gathering areas are planned. Site elements including bump-outs, stone walls, site furniture, trees, and lighting will help unify the project corridor.

# STAFF WORKLOAD

We understand the importance of this plan to the Town of Arlington and will prioritize this project in order to complete the work within the schedule outlined in the RFP. We have thoughtfully reviewed the scope of work, schedule, and budget and have outlined here our proposed staff’s current and projected workload to clearly present that we have the volume and capacity to follow through the project in a timely and professional manner. All of the staff proposed for this effort are based in Boston.

STAFF AND PROJECT ROLE	AVAILABILITY
NELSON\NYGAARD	
Bill Schwartz, Principal-in-Charge	50%
Matt Smith, Project Manager	65%
Alyson Fletcher, Transportation, Multimodal, and Outreach Lead	60%
Suzie Birdsell, GIS Lead and Transit Analyst	70%
Dan Berez, Transit and Emerging Mobility	50%
Jacob DeGeal, Visual Communications	85%
BETA GROUP	
Kien Ho, Traffic Engineer	50%
Jaklyn Centracchio, Traffic Engineer	60%
Tyler de Ruiter, Project Engineer	60%
Scott Ridder, Transportation Planner	70%

# REFERENCES

Nelson\Nygaard has served hundreds of clients and we are proud of our record of positive relationships with clients, enjoyed both during and after completion of project engagements. We have provided a list of references who can speak to our high-quality work, realistic approaches to scope, and projects completed on time and on budget on similar projects. For each project, we have included a project contact and contact information.

## City of Newton

Nicole Freedman, Director of Transportation Planning  
t: 617-879-8148  
e: [nfreedman@newtonma.gov](mailto:nfreedman@newtonma.gov)

**Can speak about:** Our work in comprehensive visioning, analysis, outreach, and implementation plan development for a suburban-Boston municipality.

## City of Salem

David Kucharsky, Director of Traffic and Parking  
t: 978-619-5697  
e: [dkucharsky@salem.com](mailto:dkucharsky@salem.com)

**Can speak about:** Our work in downtown and residential parking analysis and strategy, tactical infrastructure project process and data collection; and local shuttle analysis (including micro transit).

## City of Beverly

Aaron Clausen, Director of Planning and Community Development  
t: 978-605-2341  
e: [aclausen@beverlyma.gov](mailto:aclausen@beverlyma.gov)

**Can speak about:** Our work in downtown parking strategy, mobility hub design and community engagement.

## City of Mansfield

Kevin Dumas, Town Manager  
t: 508-261-7370  
e: [kdumas@mansfieldma.com](mailto:kdumas@mansfieldma.com)

**Can speak about:** Parking strategy, wayfinding and active transportation connectivity to enhance downtown economic vitality.





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## **APPENDIX: FULL RESUMES**

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## MATT SMITH PRINCIPAL



### EDUCATION

Master of Urban Planning, Hunter College of the City University of New York

B.S., Communications, Syracuse University

### EXPERIENCE

Nelson\Nygaard Consulting Associates  
Principal, 2018–Present

**Plan South Boston, Dorchester Avenue Transportation Study, Boston Planning and Development Agency (Boston, MA), 2019-Ongoing.** As Deputy Project Manager, Matt is responsible for all land use analysis, active transportation and curbside management analysis and strategy, and public engagement activities as part of a comprehensive transportation plan process and strategy to serve existing and future residents, workers and visitors in an area that will encompass up to 16 million square feet of new development as proposed in the 2016 Plan South Boston: Dorchester Avenue plan.

**Manchester TOD Planning Strategy, SNHPC (Manchester, NH), 2019-Ongoing.** Matt is leading the transportation components of this comprehensive neighborhood redevelopment plan around a potential commuter rail station in Manchester's downtown. The area presents numerous connectivity challenges including steep grades, limited internal roadway capacity, and poor pedestrian and bicycle amenities and connections. Given the uncertainty around future rail service, the plan aims to create a transit-oriented development served by local and regional bus, and trail connectivity to support increased density, reduce auto dependency and support local economic development initiatives, while making the area "rail ready."

**Beverly Depot Mobility Hub, City of Beverly (Beverly, MA) 2018-Ongoing.** Matt is working with the City of Beverly to plan and design a multimodal mobility hub at the Beverly Depot, one of the busiest stations in the MBTA commuter rail network. The project incorporates a review of existing transportation conditions and services (shuttle, TNC's, bike share), infrastructure conditions in and around the station, and connectivity to and from the station for all modes of travel. The plan and design will be informed by design workshops and public feedback to ensure the mobility hub meets current and future (emerging) mobility needs of residents, workers and employers. This iterative planning process will result in a 25% design of a preferred alternative, which will allow the City to seek additional funding to complete and implement the design.

**Salem On-Call Services and Shuttle Analysis, City of Salem Traffic and Parking Department, (Salem, MA) 2018-Ongoing.** Matt is advising the City of Salem on strategic transportation and parking initiatives including tactical transportation project planning, data collection and outreach activities to ensure projects are carried out successfully; parking data collection and analysis support, and resident parking strategy development. In addition, Matt oversaw Nelson\Nygaard's analysis of potential local intracity shuttle options, with a recommendation to pilot a micro-transit, on-demand node-based shuttle.

**Amherst Downtown Parking Study, Town of Amherst (Amherst, MA), 2018-2019.** Matt served as the Project Manager on this comprehensive effort to develop new parking management policies in downtown Amherst, including rates, time limits, enforcement, and departmental organization. This plan emphasizes the development of an implementation framework for the City to effectively move toward a better parking future.

**Esplanade Pathway Improvement and Safety Plan, Esplanade Association (Boston, MA) 2018-2019.** As Project Manager, Matt is working with the Esplanade Association to develop a multimodal vision and action plan for all active transportation users within, to, and from the Esplanade. The plan will establish a set of design guidelines to guide overall pathway improvements for pedestrians, runners, bicyclists, and other users as well as identify specific infrastructure projects and priorities, and implementation strategies. The overarching strategy will improve the current pathway system, enhance safety, but also respect the Esplanade's landscape character and history.

## BILL SCHWARTZ PRINCIPAL



### EDUCATION

M.S., Transportation,  
Massachusetts Institute  
of Technology

B.A., Government  
and Geography, Clark  
University

### EXPERIENCE

Nelson\Nygaard  
Consulting Associates  
Principal, 2018–Present

#### **Belmont Traffic Calming Technical Associates, Town of Belmont (Belmont, MA)**

**2019-Ongoing.** Bill is Project Manager assisting the Town of Belmont with several tasks associated with the new high school construction project. Tasks include recommending improvements to improve bicycle and pedestrian access during and after construction of the new school campus, consolidation of bus stops on Concord Avenue, design of a parking-protected bike lane on Concord Avenue, and traffic calming improvements on Trowbridge, Baker, and Hittinger Streets.

#### **Winchester Master Plan Transportation Assistance, Town of Winchester**

**(Winchester, MA) 2019.** Bill is supporting the town's master planning team by developing transportation scenarios and recommending measures to increase use of alternatives to driving, particularly for school pickup and drop-off. The recommendations also focused on improving accessibility and coordinating planning with adjacent communities.

#### **MBTA Systemwide Station Access Study, MassDOT (Boston, MA) 2019-Ongoing.**

Bill is Deputy Project Manager for access planning study of the MBTA's rail stations. The study includes compilation of bicycle and vehicle parking data, development of a

#### **Boston Transportation Department Shared Mile Initiative, National Resources**

**Defense Council (Boston, MA) 2019-Ongoing.** Bill is leading the development of curbside use guidelines as part of the City of Boston's Shared Mile Playbook. He is also supporting the development of guidance on implementing mobility hubs throughout the city. This includes promotional materials and specifications documents for mobility hub elements and location typologies for different use cases. Bill organized a one-day mobility workshop to build partnerships among public, private, community, and institutional stakeholders.

#### **Providence Great Streets Master Plan, City of Providence (Providence, RI) 2019.**

Bill served as Implementation Task Lead for Providence's complete streets master plan, which aims to transform the city's street network to accommodate all users and improve safety. Bill's team evaluated the regulatory framework, interviewed department leaders, identified effective practices in project delivery, and recommended changes to improve coordination.

#### **The RIDE Technical Assistance, Massachusetts Bay Transportation Authority**

**(Boston, MA) 2018–2019.** Bill served as the firm's Project Manager for technical assistance to the MBTA's Office of Transportation Assistance, which oversees The RIDE. Tasks completed during this period included rider survey, training activities for the eligibility appeal panel, and procurement assistance for selecting service providers.

#### **Plan for Accessible Transportation Infrastructure (PATI), Massachusetts Bay**

**Transportation Authority (Boston, MA) 2018.** Bill served as Subject Matter Expert for the MBTA PATI project. He helped train and oversee quality for data collection covering accessibility features at more than 7,500 bus stops and more than 175 rail stations system wide. He tabulated results and supported the agencies prioritization efforts for implementing accessibility improvements.

#### **MassDOT State Pedestrian Plan, Massachusetts Department of Transportation**

**(Pioneer Valley, MA) 2016–2017.** As part of a team, Bill examined demographic changes, regional pedestrian planning efforts, and other resources to establish a framework for better integrating MassDOT's pedestrian guidelines with local infrastructure. The comprehensive demographic analysis was used to support the development of policy-level improvement strategies. Bill also provided ADA subject matter expertise to support the plan's Municipal Resource Guide.



## ALYSON FLETCHER SENIOR ASSOCIATE



### EDUCATION

M.C.R.P., Cornell University, NY

M. Landscape Architecture, Cornell University, NY

M.A., Art & Art History, Literary & Cultural Studies, College of William & Mary, VA

### EXPERIENCE

Nelson\Nygaard Consulting Associates  
Senior Associate, 2019–Present;  
Associate, 2014–2019;  
Intern, 2013–2014

#### **Newton Multimodal Transportation Strategy, City of Newton (Newton, MA) 2016–2017.**

Alyson was the Deputy Project Manager for this citywide strategy for active transportation, transit, vehicular circulation and parking. She led and organized the community outreach process, the project branding and outreach graphic development, and all mapping and writing efforts. Alyson served as the project manager for Newton's complementary Economic Development Strategy and for multiple corridor and development plan projects.

#### **Arlington Parking Management Plan, Town of Arlington (Arlington, MA) 2013–2014.**

Alyson was the lead planner and graphic designer for the development of a multimodal parking management plan with specific strategies to alleviate real and perceived parking problems in the core of the central business district.

#### **Boston Esplanade Pathway Improvement and Safety Plan, Esplanade Association (Boston, MA) 2018–2019.**

As Deputy Project Manager, Alyson worked with the Esplanade Association to develop a multimodal vision and action plan for all active transportation users within, to, and from the Esplanade. The plan establishes a set of design guidelines to guide overall pathway improvements for pedestrians, runners, bicyclists, and other users as well as identify specific infrastructure projects and priorities, and implementation strategies. The overarching strategy improves the current system, enhances safety, but also respects the Esplanade's landscape character and history.

#### **Downtown Rogers Street Design Study, City of Rogers (Rogers, AR) 2018–2019.**

Alyson was the project manager to assess how the street network in downtown Rogers can balance mobility for all users including how well its parking supply supports adjacent uses and reduces speeding and how Rogers can improve walking and biking connectivity to and within the downtown area. Alyson also led the subsequent cycletrack design that was recommended as part of the project.

#### **Belmont High School Master Plan, Town of Belmont (Belmont, MA) 2017–2019.**

Supporting an interdisciplinary master planning team to improve multimodal access design and policy parameters for a renovated high school redesigned to also accommodate the middle school. Project included extensive stakeholder outreach with students, teachers, parents, and neighboring residential areas.

**Bentley University TDM Plan, Bentley University (Waltham, MA) 2018–2019.** Alyson served as the project manager for this project that addressed parking and demand management, bicycle and pedestrian access, emerging mobility, and campus transit on Bentley's picturesque campus 10 miles outside of Boston. The Plan responds to present challenges with sustainable, cost-saving measures to improve campus mobility for current students, faculty, and staff, while providing forward-thinking strategies that incorporate best practices in emerging mobility.

#### **Tulsa Downtown Walkability Study, Tulsa Downtown Coordinating Council (Tulsa, OK) 2016–2017.**

Alyson served as the project manager for this walkability study in downtown Tulsa that addressed the principal factors determining driver speed and pedestrian exposure, both of which discourage walking. The project included a corridor analysis that included a review and compilation of existing conditions and the development of preliminary, planning-level recommendations for an improved street network, identifying the number and direction of all driving lanes within the study area.

**Tufts University TDM Plan, Tufts University (Medford, MA) 2014.** Alyson assisted in the preparation of this transportation demand management plan that included multimodal improvements, best practices for bike and pedestrian access, and conceptual intersection redesign.

## SUZIE BIRDSSELL ASSOCIATE



### EDUCATION

M.S., Geographic Information Science, Clark University, MA

B.A., Geography, Women's & Gender Studies, Clark University, MA

### EXPERIENCE

Nelson\Nygaard Consulting Associates  
Associate, 2016–Present

**Cambridge Citywide Plan, City of Cambridge, (Cambridge, MA) 2016–2018.**

Main analyst for research and data collection to inform the mobility component of the Citywide Plan with an emphasis on existing sustainable policies, including community outreach.

**City of Belle Isle Transportation Master Plan (Belle Isle, FL) 2018–2019.** GIS and data analyst for existing conditions including modal, traffic, and safety analyses.

**MBTA Systemwide Service Redesign, (Boston, MA) 2017–2019.** GIS and data analyst for existing transit market conditions and travel patterns for all of the greater Boston area.

**Rhode Island Transit Master Plan, Rhode Island Public Transit Authority**

**(Providence, RI) 2018–Ongoing.** Market Analysis task lead and main analyst for Rhode Island's statewide transit plan through 2040, including high-capacity transit, commuter rail, flex and on-demand service, and ferry service.

**Las Vegas Mobility Plan, Regional Transportation Commission (Las Vegas, NV)**

**2019–Ongoing.** GIS analyst for the development of a long-range transportation plan for Southern Nevada's future regional system. Lead analyst on multi-variable scenario analysis, to compare strengths, weaknesses, and trade-offs of different scenarios.

**Fort Worth Transit Master Plan, City of Fort Worth (Fort Worth, TX) 2018–Ongoing.**

Lead analyst on scenario evaluation to compare strengths, weaknesses, and trade-offs of different scenarios.

**Regional Transit Framework Study, Maricopa Association of Governments,**

**(Phoenix, AZ) 2016–Ongoing.** GIS analyst and deputy project manager for the development of an update to the Regional Transit Framework, focusing on feasibility and development of high capacity transit services.

**RTA Strategic Transit Plan (New Orleans, LA) 2016–2018.** GIS and data analyst for existing and future transit market conditions and effectiveness of scenario development.

**Commuter Bus Feasibility Study, Maricopa Association of Governments (Phoenix,**

**AZ) 2019–Ongoing.** Project Manager for assessment of existing and future commuter bus demand in the Phoenix metro area and alternatives development to improve long-distance commuter mobility in the region.

**Joliet Express Bus Study, Pace (Chicago, IL) 2019–Ongoing.** Deputy Project Manager for feasibility of existing express bus service between the City of Joliet and other suburban Chicago communities.

**SCTA Transit Development Plan Update, (Lancaster & Berks Counties, PA)**

**2017–2018.** GIS and data analyst for existing transit market conditions and Title VI programs.

**SORTA Bus Stop Optimization Project, Southwest Ohio Regional Transit Authority,**

**(Cincinnati, OH) 2018–Ongoing.** Deputy Project Manager and Data Analyst for the inventory of over 4,500 stops system-wide and bus stop optimization resulting in removal of underutilized stops and optimizing stop spacing based on land use.

**Lawrence Transit Comprehensive Operations Analysis, Lawrence-Douglas County**

**MPO, (Lawrence, KS) 2016–2017.** GIS and peer analyst for the assessment of service performance for Lawrence Transit and KU on Wheels, with an emphasis on improving service productivity and potential service consolidation, including a comprehensive fare analysis.

## DAN BEREZ ASSOCIATE



### EDUCATION

M.A., Urban Planning,  
Transportation  
Policy and Planning,  
University of California  
Los Angeles

B.A., Sociology, Pitzer  
College

### EXPERIENCE

Nelson\Nygaard  
Consulting Associates  
Associate, 2015–Present

**Plan South Boston: Dorchester Avenue Transportation Plan, Boston Planning and Development Agency (Boston, MA) 2019-Ongoing.** Dan is serving as a project advisor on a transportation master planning effort for one of the City of Boston's largest redevelopment areas. In this role, Dan will support the project team in identifying short term tactical transit investments as well as transformative long-term investments to support mobility for current and future residents and workers.

**Everett Transportation Improvement and Management Plan, City of Everett, MA 2018-2019** Dan was the deputy project manager of a city-led transportation master plan for a suburb of Boston, MA. Study included the identification, selection, and initial planning for a series of transit priority corridors, as well as the development of growth-supportive multimodal transportation strategies. Project concluded with a detailed short-term and long-term implementation strategy.

**Hazelwood Green Long Range Transportation Plan, Almono LP (Pittsburgh, PA) 2019.** Dan developed and evaluated potential transit projects for a large-scale urban redevelopment site in Pittsburgh. Tasks included the development of planning-level alignments and stop locations, cost estimates, and ridership forecasts.

**Everett Transit Action Plan, MassDOT (Boston, MA) 2016.** Dan was the deputy project manager for a study that identified and evaluated short, medium, and long-term transportation improvement projects in a quickly growing suburb of Boston. He developed the market analysis, service analysis, and community outreach plan. Project led to a successful implementation of a bus only lane pilot, which has served as a pioneering example using tactical urbanism for transit service improvements.

**Improving Ridership on the Fairmount Line, The Boston Foundation (Boston, MA) 2016–2017.** Dan was the deputy project manager for a study that focused on identifying short term, low cost interventions designed to increase ridership on an underutilized rail corridor serving many of Boston's most transit reliant neighborhoods. Dan led the development of study recommendations, conducted outreach to both community stakeholders and local planning officials, and assisted in a comprehensive ridership count.

**MBTA Systemwide Station Access Strategy, MassDOT (Boston, MA) 2019-Ongoing.** Dan is the technical lead for the development of a comprehensive strategy for enhancing access to MBTA commuter rail and subway stations – including car parking, multimodal access, and transit oriented development. The project includes the development of a systemwide car and bike parking demand model, a mobility hub toolkit, and a station access policy to guide capital allocation decision making.

**Park and Ride Strategy, TransLink (Vancouver, BC) 2019-Ongoing.** Dan is the deputy project manager for the development of a strategy to site and manage park and ride facilities throughout the TransLink transit network. Study includes the development of a evaluation toolkit to inform the siting of new park and ride facilities, the expansion of existing facilities, and the conversion of facilities to new uses, such as transit oriented developments and mobility hubs.

**Improving Parking as Part of MBTA System, MBTA (Boston, MA) 2017.** Dan was the deputy project manager for a comprehensive study of pricing and policy for MBTA-owned commuter rail and rapid transit parking facilities. Dan developed facility typologies and pricing, product, and investment recommendations, which the MBTA began implementing in 2018.



## JACOB DEGEAL ASSOCIATE



### EDUCATION

M.F.A., Design,  
University of Texas at  
Austin

B.S., Graphic Design  
and Photography,  
Illinois State University

### EXPERIENCE

Nelson\Nygaard  
Consulting Associates  
Associate, 2019–Present

**Downtown Rogers Street Design Study, City of Rogers (Rogers, AR) 2019.** Designer. Jacob designed an identity system for a proposed complete street concept in Rogers, Arkansas. Part of a downtown walkability study, Poplar Street was identified as a unique opportunity to implement protected tree-lined bike lanes, increased pedestrian amenities, and traffic-calming devices. The final identity complemented and modernized the character of downtown Rogers, paying homage to their retro Coca-Cola advertisements, Southern typographic flair, and almost century-old brick streets.

**Pinal County Transit Governance Study, Central Arizona Governments (Apache Junction, AZ) 2019–Ongoing.** Designer. Working closely with project managers and associate planners, Jacob designed an identity for a transit governance study in south-central Arizona. A county rich in history, the plan identity organizes the area's ghost towns, awe-inspiring desert plateaus, and natural wildlife into recognizable regional focus.

**OnHand Coordinated Human Service Plan, RTA of Southeast Michigan (Detroit, MI) 2019–Ongoing.** Designer. Nelson\Nygaard was contracted for the Coordinated Human Services Public Transit Plan of Southeast Michigan. The plan seeks to organize paratransit services for vulnerable residents living in the state's most populous region. In addition to designing the identity for the project, Jacob also proposed a new shorter name that would still capture its scope. OnHand is a visual and idiomatic brand that builds upon the vernacular wayfinding commonly used by Michiganites. In addition, accessibility was used as a basis for design, testing fonts and colors for vision sensitivity.

**Esplanade Pathway Safety and Improvement Plan, Esplanade Association (Boston, MA) 2019.** Designer. Jacob designed the final report, organizing raw text, data, research photography, and maps into a comprehensible and visually engaging report, fit for Boston's iconic greenway. Jacob developed clear and cost-effective wayfinding for bike and pedestrian prioritization, through a mix of surface stenciling, signage, and graphic imagery.

### PREVIOUS EXPERIENCE

**University of Texas at Austin, Austin, TX**  
Instructional Assistant Professor, 2019

- Used established principles from the science of learning to design and deliver design curriculum and instructional activities for graduate students learning human-centered design, including leading lectures on experience prototyping, design critiques, and peer feedback. Co-conducted a design research project to radically reimagine the standard undergraduate design critique. Designed and led two juried critiques.

**My Health Resources (MHMR) of Tarrant County, Fort Worth, TX**  
Design Consultant, 2018

- Consultant for federal grant program using design thinking to improve transportation access to clients in the criminal justice system in order to reduce recidivism. Assisted in facilitation of design thinking workshops, created product visualizations, and co-developed business plan and final pitch.



# Kien Y. Ho, PE, PTOE

## Vice President

### Professional Overview

Mr. Ho has 35 years of experience specializing in all aspects of highway and transportation design and engineering including performing highway conceptual for urban and residential areas close to major metropolitan roadway systems. Kien performs and managed preliminary and final designs for highway projects, constructability review, construction staging/ sequencing, traffic management plans, final construction inspection, specifications and analyses, and installation of Intelligent Transportation Systems. He also has experience in designing and managing complex highway design-build type of project. He has extensive experience in complex urban arterial / highway interchange projects and has authored and published technical papers.

As a Vice President at BETA, Mr. Ho provides management, project supervision and technical guidance on a variety of transportation facility improvement projects and large-scale civil engineering projects.

#### **Lexington Projects – Lexington, MA**

- Managed numerous transportation projects from design to construction. Projects consist of concept development to design and construction. Lexington Center, Battle Green, Clark Middle School, Robinson Road and various intersection signal improvements assignments.
- Responsible for providing technical support to the project team performing all the assignments such as roadway improvements, parking studies, safety improvements, pedestrian signal design, traffic signal design, traffic calming design and studies, signing and pavement marking design and peer review.
- Represent the Town at meetings by providing technical support and presentations.
- Assist the Town in evaluating the existing transportation system infrastructure and applying Transportation System Management strategies as a means of improving congestion and/or safety problems on the roadway system without resorting to major reconstruction of the existing roadway infrastructure. Apply the latest Intelligent Transportation System to traffic signal improvements.

#### **On-Call Engineering Services – Wellesley, MA**

- Managed numerous transportation roadway and multi-use trail projects (Fuller Brook Park) from design to construction. Over saw construction inspectional services and performed final punch list on roadway infrastructure projects.
- Responsible for providing technical support to the engineers performing all the roadway and transportation assignments such as roadway improvements, parking studies, safety improvements, pedestrian signal design, traffic signal design, traffic calming design and studies, signing and pavement marking design and peer review.
- Assist and represent the Town of Wellesley at meetings by providing technical support.
- Assist the Town in evaluating the existing transportation system infrastructure along the Washington Street corridor and applying Transportation System Management (TSM) strategies as a means of improving congestion and/or safety problems on the roadway system without resorting to major reconstruction of the existing roadway infrastructure. TSM techniques and the latest ITS application of advanced and emerging technologies such as traffic responsive type of software coupled with Ethernet communication.

#### **Massachusetts Statewide Traffic Engineering Advisory On-Call Services – MassDOT**

- As Project Manager, responsible for managing work orders assigned by the MassDOT Department including those associated with highway signage and signalized intersection improvements.



### Primary Discipline

Transportation

### Years of Experience

- BETA: Since 2002
- Total: Since 1984

### Education

- MSCE, Transportation Engineering, Northeastern University (1994)
- BSCE, Cleveland State University (1984)

### Training and Certifications

- Certified IMSA (International Municipal Signal Association) Traffic Signal Inspector
- Certified # SI-71973

### Registrations

- Professional Engineer: RI #7177, CT #20486, MA #46431, NH # 15510
- Professional Traffic Operations Engineer
- Certified IMSA (International Municipal Signal Association) Traffic Signal Inspector

### Affiliations

- ITS: MA Chapter
- ITE:
  - MA Chapter
  - New England Chapter
  - National
- Boston Society of Civil Engineers
- Women's Transportation Seminar Boston



# Jaklyn C. Centracchio, PE, PTOE

## Project Engineer

### Professional Overview

Ms. Centracchio has 17 years of experience in traffic engineering and has developed a diverse background in many phases of transportation engineering. Her background includes traffic analysis, traffic calming, traffic design, and design for roadway. She is proficient in VISSIM, HCS, SYNCHRO, and AutoCAD applications. Her experience further includes:

- Traffic Signal Design
- Traffic Signal Inspections
- Conceptual Design Reports
- Traffic Impact Studies
- Functional Design Reports
- Traffic Calming Studies
- Traffic Calming Design
- Pedestrian Safety Studies
- Traffic Management & Detour Plans
- Parking and Traffic Circulation Studies
- Physical Alteration Permits
- Construction Inspection and Management

#### Northland Transit-Oriented Development Peer Review, Newton, MA

- Conducted a review of the Zoning By-Laws, Ordinances and Code for parking requirements of seven communities in the metro Boston area to determine the best practices for this large-scale TOD project on Needham Street in Newton. Project included over 800 multi-family units, several thousand square feet of mixed-use development and a 7-bus shuttle system to serve site users and the public.

#### Route 140 and Route 106 Traffic and Safety Improvements – Mansfield, MA

- Prepared Functional Design Report summarizing traffic data, analysis and findings.
- Effort included the traffic signal coordination and associated plan work for five additional intersections along Route 140.
- Prepared 25% Design Traffic Signal plans, Pavement Marking and Signing plans, and estimate for associated items at the intersection.

#### Adaptive Traffic Signal Project on Route 109 – Westwood, MA

- Coordinated the data collection effort which in part included the deployment of BlueTOAD technology to capture real time speed data.
- Managed the preparation of Traffic Signal plans for the 25% design submission for the upgrade of seven signalized intersection's traffic equipment to provide a full Adaptive Signal Control Technology (ASCT) system and the upgrade of existing communication equipment to provide real time video to the police department.
- Prepared the technical memorandum which included the inventory of existing traffic signal equipment at each location, safety analysis, safety review, traffic volumes and travel time data.
- Met with the Town DPW, Police Department, and IT personnel.

#### Town-wide Marked Crosswalk Evaluation – Westwood, MA

- Evaluated 202 crosswalk locations and associated ramps town-wide for safety, ADA, and MUTCD compliance.
- Created a comprehensive program to enhance safety and accessibility at pedestrian crossing locations throughout the entire Town.



### Primary Discipline

Transportation

### Years of Experience

- BETA: Since 2007
- Total: Since 2002

### Education

- BS, Civil/Environmental Engineering, University of Rhode Island, Kingston (2002)

### Registrations

- Professional Engineer – NH #14608
- Professional Traffic Operations Engineer #3877 (2019)
- LEED Green Associate (2013)

### Training and Certifications

- Certified International Municipal Signal Association (IMSA) Traffic Signal Inspector

### Affiliations

- Women's Transportation Seminar
- Institute of Transportation Engineers

### Technical Competencies

- VISSIM
- HCS
- SYNCHRO
- AutoCAD
- Petra
- Quest





# Tyler de Ruiter, PE, PTOE

## Project Engineer

### Professional Overview

Mr. de Ruiter is a Project Engineer in the transportation department at BETA with nine years of professional experience. During his time with BETA, Tyler obtained his professional engineering license and continues to gain experience in civil design, traffic engineering, Complete Streets planning, and peer review of various transportation projects. Tyler's professional experience at BETA is attributed by the following skills and tasks:

- Traffic Signal and Intersection Design
- Roadway, Striping, and Signage Design
- Development and Preparation of Project Plans and Technical Reports
- Traffic Calming Studies and Measures
- Complete Streets Development and Data Collection/Integration
- Roundabout Design and Modeling
- Synchro Traffic Analysis
- Access and Safety Studies for Schools and Other Sites

### Project Experience

#### ***Municipal On-Call Traffic – Multiple Communities***

- Peer review of Site Plans and Traffic Impact and Access Studies
- Evaluate field conditions, perform traffic analysis, and design geometric and safety improvements
- Present at respective public hearings and meetings
- Attend and moderate Road Safety Audits for areas of safety concern

#### ***Amelia Drive Evaluation – Nantucket, MA***

- Utilized traffic volume data to evaluate neighborhood impacts for various reconfiguration alternatives of a narrow commercial street
- Options included conversion to one-way, expansion for parking, and expansion for pedestrian/bicycle infrastructure

#### ***Town-Wide Traffic Evaluation – Randolph, MA***

- Developed several short-term, mid-term, and long-term design concepts to promote traffic calming within two neighborhoods
- Concepts included median islands, mini-roundabouts, traffic circles, all-way stops, and traffic signals

#### ***Old South Road Corridor Study – Nantucket, MA***

- Collected field data and performed Synchro and Sidra analysis for 11 intersections
- Developed several short-term, mid-term, and long-term design concepts to promote traffic calming as well as improved operations and safety for all users
- Concepts included improved bus accommodations (pull-offs) and five roundabouts at four intersections

#### ***Speed Studies – Multiple Locations – Lenox, MA***

- Collected and analyzed speed data and regulatory speed limits to provide a comprehensive evaluation of travel speeds on rural roadways

#### ***Complete Streets Experience – Multiple Communities***

- Responsible for collecting and compiling data to establish potential projects (Tier II)
- Assisted with data integration, costing estimating, prioritization and ranking or projects (Tier II and Tier III)



### Primary Discipline

Transportation

### Years of Experience

- BETA: Since 2012
- Total: Since 2010

### Education

- MS, Civil Engineering (Transportation) – University of Massachusetts, Amherst (2012)
- BS, Civil and Environmental Engineering – University of Massachusetts, Amherst (2010)

### Training and Certifications

- OSHA 10 – Construction Safety #002315733 (2009)
- OSHA – Confined Space Entry (2017)

### Registrations

- PE – MA #52647 (2016)
- PTOE - #4635 (2019)

### Affiliations

- American Society of Civil Engineers (ASCE)
- Boston Society of Civil Engineers Section (BSCES)
- BSCES Younger Member Group (YMG) – Former UMass Amherst Liaison
- BSCES Transportation & Development Institute (T&DI) – Berger Seminar Chair / Vice Chair
- Institute of Transportation Engineers (ITE)
- Young Professionals in Transportation (YPT)



# Scott T. Ridder, RLA, ASLA, LEED AP, SITES AP

## Project Manager/Senior Landscape Architect

### Professional Overview

Mr. Ridder possesses a wide array of experience in designing landscape architecture and site development projects throughout New England. Expertise incorporates a broad variety of project types including transportation and streetscapes, historic roadways and sites, native restoration plantings, recreational fields and trails, and building/site permitting and development for municipal, institutional, commercial, and residential clients. Scott also provides proposed project site and landscape design peer reviews for numerous local municipalities.

### Project Experience

#### ***Streetscape – Lexington, MA***

- Landscape architect for the redevelopment of the downtown streetscape on Mass Ave., also known as Battle Road. This historic corridor is a pedestrian filled area that ties the Battle Green to the Civic and Commercial cores. Updated the 25% design plans based on the Center Streetscape Ad-hoc Committee's recommendations. Prepared an existing tree inventory and historic survey. Revised plans focus on maintaining the existing tree layout, wide brick sidewalks and seating configurations in the core area. Proposed work includes new brick sidewalks, seating areas, lighting installed, and trees planted.

#### ***East Main Street Streetscape – Fall River, MA***

- Prepared conceptual design for two streets in Fall River. The first, East Main Street, a 2,750 linear foot connection from Dwelly Street to South Main Street. The intersection of East and South Main streets includes a granite monument to Thaddeus Kosciusko, a Polish and American Revolutionary War hero. The second project includes Purchase and Bank Streets just off Government Center in the heart of downtown. Bank Street is the pedestrian link to Battleship Cove. Developed new sidewalks and bump-outs at the intersections, various gathering areas, tree plantings, and lighting. Construction began in the fall of 2017.

#### ***Sidewalk Planting, Roosevelt Ave, Pawtucket, RI***

- LID project where we developed a series of six, 4' x 35' planted areas that are flush with sidewalk. Runoff from the sidewalk will provide water for the plants. Planted alternating beds of perennials, ornamental grasses, and bulbs for a multi-season effect. Plants selected for their ability to withstand a dry urban environment as well as being salt tolerant.

#### ***Streetscape – Salem, MA***

- Working on landscape improvements along an 800-foot section of Essex Street in downtown Salem which is part of Salem's Heritage Trail. The roadway corridor is narrow; one-way traffic with parking on both sides of the road and narrow sidewalks. Project includes removing parking on one side and widening the sidewalks, adding a bike lane, bump-outs, tree planting, granite seat planters and lighting.

#### ***Roadside Path, Putnam Ave – Barnstable, MA***

- Recently prepared conceptual design plans for a roadside meandering path along Putnam Avenue in the village of Cotuit, MA. The project corridor, approximately 1.8 miles long, begins at Tupelo Road (near Rte 28) and extends south to Main Street. Project will provide pedestrian connection to various residential and open space areas. Various path locations were explored including potential curbing, grading, retaining walls, and crosswalks. Presented plans to community group.



### Primary Discipline

Landscape Architecture

### Years of Experience

- BETA: Since 2013
- Total: Since 1984

### Education

- Bachelor of Landscape Architecture (BLA) - Louisiana State University, 1984

### Registrations

- Registered Landscape Architect  
- MA #893, CT #898,  
ME #2727, NH #98, RI #483

### Certifications

- ASLA
- BSLA
- CLARB
- SITES AP
- LEED AP





# B

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## **APPENDIX: REQUIRED FORMS**

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**CERTIFICATE OF NON-COLLUSION FORM**  
**TOWN OF ARLINGTON**  
**SUSTAINABLE TRANSPORTATION PLAN**

The undersigned certifies under penalties of perjury that this bid or proposal has been made and submitted in good faith and without collusion or fraud with any other person. As used in this certification the word "person" shall mean any natural person, business, partnership, corporation, union, committee, club, or other organization, entity, or group of individuals.



\_\_\_\_\_  
Signature of Individual Submitting Bid or Proposal

Leah Riley

\_\_\_\_\_  
Name of Individual Submitting Bid or Proposal

Nelson\Nygaard Consulting Associates, Inc.

\_\_\_\_\_  
Name of Business

November 1, 2019

\_\_\_\_\_  
Date

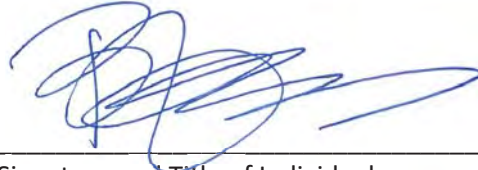
BY STATE LAW THIS NON-COLLUSION FORM MUST BE SIGNED AND SUBMITTED WITH THE BID OR PROPOSAL.

**CERTIFICATE OF TAX COMPLIANCE FORM**  
**TOWN OF ARLINGTON**  
**SUSTAINABLE TRANSPORTATION PLAN**

Pursuant to MGL Chapter 62C, Section 49A, I certify under the penalties of perjury that I have complied with all laws of the Commonwealth of Massachusetts relating to taxes, reporting of employees and contractors, and withholding and remitting child support.

58-2592493

\_\_\_\_\_  
Social Security Number or  
Federal Identification Number



\_\_\_\_\_  
Signature and Title of Individual or  
Responsible Corporate Officer

BY STATE LAW THIS CERTIFICATE OF TAX COMPLIANCE FORM MUST BE SIGNED AND SUBMITTED WITH THE BID OR PROPOSAL.







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## **APPENDIX: INSURANCE COVERAGE**

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# CERTIFICATE OF LIABILITY INSURANCE

7/1/2019

DATE (MM/DD/YYYY)

6/29/2018

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

**IMPORTANT:** If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

<b>PRODUCER</b> Lockton Companies 444 W. 47th Street, Suite 900 Kansas City MO 64112-1906 (816) 960-9000	<b>CONTACT NAME:</b>	
	<b>PHONE (A/C, No, Ext):</b> <b>FAX (A/C, No):</b>	
<b>INSURED</b> 1437223 NELSON\NYGAARD CONSULTING ASSOCIATES, INC. 116 NEW MONTGOMERY STREET, STE., 500 SAN FRANCISCO CA 94105 NELSON\NYGAARD	<b>E-MAIL ADDRESS:</b>	
	<b>INSURER(S) AFFORDING COVERAGE</b>	
	<b>INSURER A:</b> LM Insurance Corporation	<b>NAIC #</b> 33600
	<b>INSURER B:</b> Endurance Risk Solutions Assurance Co	43630
	<b>INSURER C:</b> Lloyds & London Co	
	<b>INSURER D:</b> Liberty Mutual Fire Insurance Company	23035
<b>INSURER E:</b>		
<b>INSURER F:</b>		

**COVERAGES****CERTIFICATE NUMBER:** 14562277**REVISION NUMBER:** XXXXXXXX

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADOL SUBR INSD WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
D	<input checked="" type="checkbox"/> <b>COMMERCIAL GENERAL LIABILITY</b> <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR  GEN'L AGGREGATE LIMIT APPLIES PER: <input checked="" type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC OTHER:	N	N	TB2661066787028	7/1/2018	7/1/2019	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 1,000,000 MED EXP (Any one person) \$ 10,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000 \$
D	<input checked="" type="checkbox"/> <b>AUTOMOBILE LIABILITY</b> <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> OWNED AUTOS ONLY <input checked="" type="checkbox"/> HIRED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> NON-OWNED AUTOS ONLY	N	N	AS2661066787018	7/1/2018	7/1/2019	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ XXXXXXXX BODILY INJURY (Per accident) \$ XXXXXXXX PROPERTY DAMAGE (Per accident) \$ XXXXXXXX \$ XXXXXXXX
B	<input type="checkbox"/> <b>UMBRELLA LIAB</b> <input checked="" type="checkbox"/> OCCUR <input checked="" type="checkbox"/> <b>EXCESS LIAB</b> <input type="checkbox"/> CLAIMS-MADE DED RETENTION \$	N	N	EXC10007382703	7/1/2018	7/1/2019	EACH OCCURRENCE \$ 6,000,000 AGGREGATE \$ 6,000,000 \$ XXXXXXXX
A	<b>WORKERS COMPENSATION AND EMPLOYERS' LIABILITY</b> ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N	N	WC5661066787038	7/1/2018	7/1/2019	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTH-ER E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000
C	<b>PROFESSIONAL LIABILITY</b>	N	N	LDUSA1801441	7/1/2018	7/1/2019	\$1,000,000 PER CLAIM/\$1,000,000 AGGREGATE

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)  
FOR INFORMATIONAL PURPOSES ONLY

**CERTIFICATE HOLDER****CANCELLATION**

14562277

EVIDENCE OF COVERAGE

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

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Technical Proposal for RFP #19-50

# Sustainable Transportation Plan

The Town of Arlington

November 5, 2019







Stantec Consulting Services, Inc.  
226 Causeway Street 6th Floor  
Boston, MA 02114-2155

November 5, 2019

Adam W. Chapdelaine  
Town Manager  
Town of Arlington  
730 Massachusetts Avenue  
Arlington, MA 02476

**RE: RFP #19-50 Sustainable Transportation Plan**

Dear Mr. Chapdelaine:

With access to service on 10 MBTA bus lines, dedicated bus lanes, and bicycle infrastructure, Arlington's residents are increasingly getting out of their cars to walk, bike, or ride. Arlington actively participates in multiple regional transportation initiatives and committees, including MAPC's regional bike share program and the BostonBRT project, which has resulted in a brand-new permanent bus priority lane. In addition to regional partnerships and initiatives, the Town has been working locally to improve bicycle, pedestrian, and transit infrastructure. The Town's focus on creating transportation options is evident from the numerous committees and local organizations working to advocate and support mobility improvements. Still, surveys show that the majority of Arlington's residents rely on personal cars as their primary transportation mode.

Arlington has a historic, walkable downtown, rolling county roads, parks, and dense yet rural streets that mix a small-town feel with direct transit access to Cambridge and Somerville (and ultimately rapid transit into Boston via the Red Line). This is the chance to thoughtfully preserve that character while planning for the future in a style unique to Arlington. The Sustainable Transportation Plan should set the course for how Arlington can plan for emerging mobility, move the needle on mode share, and improve quality of life- all while staying true to a set of goals. One of the most important components of this plan will be the development of those goals and a plan for how to measure the town's success. The Transportation Vision that this project will create should filter down into all aspects of town management, from policies to zoning codes to what happens on the ground. While the Master Plan provides a good starting point, there is a need to more clearly define some of the objectives it contains as well identify other mobility barriers and challenges. This Sustainable Transportation Plan should answer that call.

Stantec's Urban Places' mobility team members have a long and trusted history in working on many of the most complicated and progressive transportation issues for municipalities across the country. Our Principal-in-Charge, **Jason Schrieber, AICP**, has led multiple mobility plans nationwide, including *Newton-in-Motion* and *Go Boston 2030*. Proposed Project Manager **Ralph DeNisco** has recently completed a transportation strategy for nearby Everett, as well as collaborating with Arlington on the *BostonBRT* project. Deputy Project Manager **Liza Cohen** brings extensive experience helping communities through the process of developing plans as well as measures for success- most recently on *Envision Cambridge*, the City's Master Plan, as part of its mobility component. With specialists in Complete Streets (**Mike Rutkowski**) and New Mobility (**Greg Rodriguez**), we have assembled a team that pairs national expertise and knowledge of best practices with experience on the implementation side.

We are ready to roll up our sleeves, dive into the data, talk to the stakeholders, engage the public in a real and meaningful dialogue, and create an implementable plan for the continued evolution of the City's transportation system. Let's get started!

Sincerely,

**Stantec Consulting Services, Inc. | Stantec's Urban Places**

**Jason Schrieber, AICP**  
Principal-in-Charge  
(617) 654-6093  
Jason.Schrieber@stantec.com

**Ralph DeNisco**  
Project Manager  
(617) 654-6089  
Ralph.DeNisco@stantec.com



Family Eye Care

484-1414

PARK AVENUE  
CONGREGATIONAL  
CHURCH

CRISP'S

NO  
TURN  
ON RED



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- » Scope of Services
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- » Team Structure
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- B. Required Forms





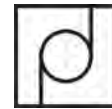
# 1. Company Background

## Stantec's Urban Places: Mobility Team

**Stantec's Urban Places** is an interdisciplinary hub bringing together leaders in planning, transportation- including smart and urban mobility, urban design, resilience, development, mixed-use architecture, smart cities, and brownfield redevelopment. We work in downtowns across North America to fulfill an urban promise of enhanced livability, equity, and diversity that multimodal mobility unlocks—in cities and suburbs alike!

Our Urban Places mobility team has a long and trusted history of working on many of the most complicated and progressive transportation issues for municipalities across the country. Our team produces innovative and financially responsible mobility plans that support a community's needs for safe, affordable and convenient transportation choices. In practice, this means focusing efforts on managing parking demand, reducing the need to construct new parking facilities and investing in strategies that support more transit, walking, and biking. The benefits are many and include reductions in downtown congestion and creation of a more equitable, accessible and inviting conditions for improved or new land uses, future development, and a more vibrant economy.

Our experience working with cities and agencies, communities, and land developers spans across North America, with projects in the Boston area ranging from transportation strategies such as Bus/Rapid Transit pilot programs in Arlington and three other suburbs, Everett's updated transportation plan, and *Envision Cambridge*, a multimodal mobility blueprint for the next decade. Our team has been planning, enabling, and building transit-oriented developments for over 20 years, and while the keys to our success are many, our single most important strength is building broad-based community support for thriving and walkable places built with transit in mind.



The Stantec **community** unites approximately 22,000 employees working in over 400 locations across 6 continents. We're planners, designers, engineers, scientists, and project managers, innovating together at the intersection of community, creativity, and client relationships.



## Expertise & Qualifications

At Stantec, we design the places and the infrastructure that a community depends on. In the Urban Places group, our never-ending quest is to understand how people use mobility networks, what influences their decisions, and how their travels could be improved. Rather than focusing on network supply, we instead quantify the demand for travel and how the collective set of systems and services might best meet it. In a diverse and growing town like Arlington, there is no one-size-fits-all solution—nor is there an ideal network for every individual mode of travel. Our experience in similar places in the region has taught us that Arlington must focus on what makes people choose amongst many networks to accomplish all their daily needs as safely, efficiently, and comfortably as possible.

### Forward Thinking

Our team members lead Stantec's Urban Places mobility group, and they are experts in traditional roadway design, pedestrian and bicycle planning and design, and transit-oriented development planning. However, our most creative planning efforts happen when we account for emerging mobility technologies that encourage environmental sustainability. For numerous municipalities, we've developed and evaluated alternative, practical strategies that show our clients a full range of benefits with a look to the future. We analyze trends, like the increasing use of ride-sharing services and implementation of bikeshare/e-scooter stations. And, as the operators of two of North America's leading autonomous-vehicle testbeds, we've placed ourselves at the forefront of the "three revolutions" of shared, electrified, and autonomous vehicles. Combined with our growing in-house library of "best practices" for urban design, we are uniquely positioned to help Arlington create a future-proofed transportation plan.

### Allocation of Resources and Schedule

Building upon the wealth of existing information, Stantec's team can develop a sustainable transportation plan in 12 months. Our core team approach allows us to use study resources where most efficient with minimal unnecessary expense. Our practicality and implementation focus, seen on Pilot BRT work and the Burlington Great Streets project, shows how we can move quickly to test or implement ideas during the plan development and beyond.

### Multimodal and Complete Streets

Stantec specializes in low-impact, sustainable, multimodal solutions that are context-driven, strategic, and comprehensive. In particular, we work with clients across North America to improve the vitality of communities by integrating transit, bicycle, and pedestrian modes in designs that not only promote a healthy lifestyle and improve overall mobility, but are also aesthetically pleasing. Mobility-oriented transportation services provide optimal whole-system solutions while reducing impacts to our natural environment. Our goal is to provide innovative, cost-effective solutions from project conception to completion.

In ensuring a sustainable plan for the next 20 years, we can even take a multidisciplinary approach involving other aspects of community planning as necessary such as landscape architecture, lighting, signage, traffic operations, ITS, and environmental engineering. The best part? This can all be done in-house.

## Past Projects & References

For over 55 years we've been active in countless transportation planning efforts, designing with each community's specific needs as well as sustainability at the forefront. We're invested in places like Arlington and other Boston areas because we're a part of them. Some of our recent local and relevant projects are included on the following pages. **Please contact any of our references to hear more about client satisfaction, project management capabilities, & technical expertise.**







# Greater Boston Bus Rapid Transit Pilots

Arlington, Cambridge, Everett, & Watertown, Massachusetts

**Four pilot bus projects were implemented in 2018, which are inspiring other installations locally and nationally.**

**Project Completion**  
2019

## Reference

Lisa Jacobson  
Barr Foundation  
(617) 854-3147  
LJacobson@barrfoundation.org

Stantec is serving as the technical expert on a multidisciplinary team working with four Boston-area municipalities to pilot Bus Rapid Transit improvements on City streets. Communities include Everett, Arlington, Cambridge, and Watertown, all cities and towns with strong bus ridership but service that gets bogged down by inefficient roadway networks and traffic from private vehicles. **Our proposed Project Manager, Ralph DeNisco, is serving as project manager for this effort, assisted by team members Amelia and Liza.**

Drawing on our library of best practices in BRT implementation, Stantec is working with existing roadway redesign projects to integrate elements that will speed buses, such as queue jump lanes, TSP, and dedicated bus lanes. Importantly, we are also leading the design of the evaluation process, which will include both objective data such as dwell times, running times, and reliability as well as subjective data like how people on bikes perceive the bus-related improvements or how riders view the service before and after changes take place.

In Everett, the team is working with the City to install temporary level boarding platforms that will speed the boarding process for those using wheelchairs, strollers, or other mobility devices as well as people on foot. Stantec is providing “street team” support to survey and record how these changes impact users, as well as guiding the before/after analysis.

Stantec is also guiding the overall process through helping communities connect with the MBTA as necessary, providing feedback on the project’s robust marketing plan, and helping participating communities coordinate amongst one another.



# Envision Cambridge Mobility

Cambridge, Massachusetts

**Envision Cambridge uncovers gaps in the city's multimodal network and is setting targets for how people will move in the future.**

**Project Completion**  
2019

## Reference

Melissa Peters  
City of Cambridge  
(617) 349-4605  
mpeters@cambridgema.gov

The plan includes a multimodal analysis of future development scenarios, which provide a quantitative understanding of transportation impacts by mode.

Through four major project milestones, our team collaborated with a citizen working group to build support and understanding for how Cambridge can grow sustainably. New data sources, coupled with clear graphics and messaging, led the working group through an understanding of gaps in the network, as well as through the difficult tradeoffs in roadway space, funding, and planning to fill those gaps. The final plan includes targets for mode share as well as equity-based targets, such as five-minute walk access to schools and libraries.

**Our proposed Deputy Project Manager, Liza Cohen, served in that role on this effort with Principal-in-Charge Jason Schrieber.**





# Everett Transportation & Development Plan

Everett, Massachusetts

**We've reimagined the way people drive, ride, and bike throughout this "inner ring" Boston community that lacks rapid transit.**

**Project Completion**  
2018

## Reference

Jay Monty  
City of Everett  
(617) 544-6033  
jay.monty@ci.everett.ma.us

2019 has been a flourishing year for the City of Everett. Its population continues to grow, there are slated to be approximately 1,000 new housing units by the end of the year, and the newly-opened Encore Resort will bring an unprecedented number of visitors to the city. Already, our planners have helped the city prepare for the future by piloting a dedicated bus lane on Broadway, which is now fully implemented and carries 10,000 riders per day. However, that innovative demonstration project was no stopping point for Everett.

More recently, the mayor led an initiative to rethink how access to parking, transit, walking, and biking facilities can provide better mobility for residents and visitors alike. Our work demonstrated how balanced infrastructure investments (and space) between personal cars and other modes creates a more level playing field and ultimately created a wider and more equitable range of transportation choices.

Based on this, Stantec created a framework for Everett to continue this development in a multimodal, transit-oriented, and realistic way that creates affordable housing choices as well as livable places. This included revisions to zoning to limit parking requirements, encourage multimodal mitigation, and allow shared parking.

**Our proposed Project Manager, Ralph DeNisco, served as project manager for this effort together with team member Liza Cohen.**





# Sidewalk Labs Quayside Development

Toronto, Ontario, Canada

**Creating a people-centered community that achieves precedent-setting levels of sustainability, affordability, mobility, and economic opportunity for all.**

**Project Completion**  
2019

**Reference**  
Willa Ng, Director of Mobility  
Sidewalk Labs (Alphabet, Inc.)  
willan@sidewalklabs.com

Sidewalk Labs, an urban innovation company owned by Alphabet Inc., has partnered with Waterfront Toronto in a joint effort to develop a new mixed-use complete community on Toronto's eastern waterfront named Quayside. The development of Quayside will leverage innovative urban thinking and new digital technology to create an integrated, sustainable, and affordable community.

Stantec has been retained to provide engineering services for the development of a Master Innovation and Development Plan for the Quayside development on Toronto's Waterfront. In close partnership with Sidewalk Labs design staff, our Transportation and Urban Places teams have undertaken detailed design and analysis work to shape the transportation network and urban realm of the Quayside community and the broader eastern waterfront.

Stantec's team also developed a variety of innovative tools to assess and evaluate the performance of all aspects of mobility in the Quayside area, including transportation demand forecasting, freight movements and management, and multi-modal level-of-service. This project has presented an exciting opportunity to assess the mobility impacts of the Quayside across a variety of innovative modes of travel, including autonomous vehicles, e-scooters, cargo drones, and self-driving taxibots.

**Our proposed Principal-in-Charge, Jason Schrieber, is serving as project manager for this effort.**





# Burlington Great Streets

Burlington, Vermont

**This downtown redesign improves multimodal mobility, streetscape, and lighting conditions for a vibrant community and its tourism-centric uses.**

**Project Completion**  
2019

## Reference

Laura Wheelock, PE  
City of Burlington, DPW  
(802) 540-0394  
lwheelock@burlingtonvt.gov

Burlington's Church Street is an iconic pedestrian mall running through the city's center. We helped expand the success and influence of Church Street by redesigning two connecting streets, Bank and Cherry. With the construction of a new mixed-use development and the reintroduction of the street grid through the deconstruction of a shopping mall, a multimodal, context sensitive design will position Bank and Cherry - parallel streets one block apart - as key links downtown. These upgraded connections provide balanced access for people on bikes, walking, and taking transit, creating a seamless flow common to old New England downtowns.

Working block by block, our design not only fit existing Burlington Great Street guidelines, but was carefully tailored to community and infrastructure needs. Overall, the plan prioritized pedestrian safety and movement and maintained the on-street parking needed for success of small businesses. Adding bicycle parking and direct access to the regional transit center on Cherry Street promotes more sustainable transit options while catering to the City's need for multi-modal connections to downtown. In some places, the design incorporated landscaped parklets and seating areas outside of popular businesses, restaurants, and gathering areas. The design has comprehensive rain gardens and green infrastructure for stormwater management. These rain gardens also help direct pedestrian flow to appropriate street crossing points.

In addition, the Stantec team has been working with the City to identify areas of private parcels needed to support the construction of the plan. Providing temporary easement diagrams as well as permanent right-of-way acquisition plans has been essential to securing additional land for the project while demonstrating direct benefits to adjacent parcel owners. **Team members Liza Cohen and Jason Schrieber led the planning component of this effort.**







## 2. Work Plan & Schedule

### Project Understanding

Arlington has long focused on community sustainability and has actively sought to increase the use of multimodal transportation options; however its policies and infrastructure have not always matched its aspiration. With access to service on 10 MBTA bus lines, dedicated bus lanes, and bicycle infrastructure, Arlington's residents are increasingly turning to more sustainable travel modes.

Arlington actively participates in multiple regional transportation initiatives and committees, including MAPC's regional bike share program and the BostonBRT project, which has resulted in a brand-new permanent bus priority lane. In addition to regional partnerships and initiatives, the Town has been working locally to improve bicycle, pedestrian, and transit infrastructure. The Town's focus on alternative transportation modes is evident from the numerous committees and local organizations working to advocate and support transportation improvements. Still, surveys show that the majority of Arlington's residents rely on personal cars as their main transportation mode.

Arlington's transportation resources are not equitably distributed through the community. Some neighborhoods have ample MBTA service while others lack even neighborhood sidewalks and bicycle infrastructure. All would agree that more reliable and efficient transit service that is seamlessly linked to bicycle and pedestrian access is needed to truly transform the way people move. Though Arlington has worked to improve transportation infrastructure and access, key challenges remain:

- » Newer neighborhoods follow a **suburban development pattern** with disconnected street networks
- » Older neighborhoods, with dense residential development, enjoy connectivity but suffer from **traffic congestion**
- » The **hilly terrain** of western Arlington makes biking and walking more difficult
- » Some of Arlington's neighborhoods **do not have easy access to bus routes**
- » Transportation infrastructure is **not evenly distributed** throughout the town

Even though Arlington is one of the region's most multimodal communities, the Town and its residents are striving to do better. In developing an equitable and sustainable transportation system, Arlington is ahead of many municipalities- but there is much work to do.

Arlington is taking the important step to turn their sustainability dreams into vision and their vision into policy and action. This project will allow the community to come together to discuss these challenges and build consensus on the best ways to achieve an equitable and sustainable transportation network.

At Stantec, we apply our experience working with communities across the country to solve local problems in an efficient, equitable, and sustainable way. We help communities incorporate today's technologies (including ridesharing and shared micro-mobility services like dockless bikeshares and e-scooters) into their transportation networks while also planning for the changes tomorrow's technologies (such as autonomous vehicles, connected transportation infrastructure, and dynamic curbside management) will bring. Our experts in urban and suburban mobility will help Arlington to:

- » Develop policies that create **streets for all**,
- » Ensure **equivalent access** to services,
- » **Shift priorities**,
- » Respond to, and prepare for, **new transportation technologies**,
- » **Capitalize on the community's interest** in sustainable transportation modes,
- » Build on opportunities for **regional connections**,
- » **Collaborate** with neighboring municipalities;
- » Create seamless **bicycle and pedestrian connections**,
- » Manage **traffic congestion**, and
- » **Balance multiple modes of transportation** in the limited right-of-way.



## Project Approach

The primary goal of the project is to **develop a transformative vision for Arlington's future**, and to provide a strategy and framework for how to get there. This will manifest itself in the development of measurable goals, the identification of policy needs, and an understanding of key projects that will shift the needle for mobility in town and incorporate emerging mobility needs. Therefore, the following tasks follow a fairly simple plan – **create a vision, hone in on how to practically measure success, and then identify projects and policies that support that framework**.

It will be critical, however, to include input and guidance from stakeholders, as the Town knows; the formation of the Sustainable Transportation Plan Advisory Committee (STPAC) is an excellent first step. Our approach includes engaging the STPAC at important project milestones, specifically the kickoff, vision and goal development, issue identification within the framework of the vision, and ultimately, of course, vetting the final Plan. In addition, while we understand that our time should be oriented towards plan development, we know how vital public engagement is to creating a plan that works for its community. In particular, it will be key to confirm the vision and ultimately create a final plan and planning process that the public understands.

Our scope generally focuses on the future, strategically using existing datasets and findings from other planning efforts rather than spending time painting a comprehensive picture of how people move to and around Arlington. Though mobility is such an important aspect of the dynamic Greater Boston Area, there are almost endless analyses to run and trends to identify. Instead, the team hopes to first focus on where Arlington should be in the future, then use that vision to focus on understanding how town infrastructure and policy may be falling short. This will allow the team to **develop targeted project and policy ideas to fill that gap and support the overall vision**.

# Scope of Services

## Task 1: Kickoff and Project Management

Upon contract signing, we will determine a mutually acceptable time for an in-person kickoff meeting. At the kickoff, we will work backwards from a definition of a successful Sustainable Transportation Plan to better explore several facets of the Plan and its development: community outreach, planning for changing technologies, metrics for success, and the balance between short- and long-term goals.

Of particular interest is identifying Town priorities that are embedded in decision-making; for example, how does Arlington's approach to development impact mitigation inform mobility in the area? Often, communities require developers to provide parking and traffic signals without accounting for other impacts - how do Arlington's version of these policies inform the built environment? This information and discussion will help ensure that all are in agreement about what would be the most useful outcome of the Plan process, which will be key to keep the project on track.

A key element of every successful project is maintaining and refining the **project schedule**. This will play a vital role in completing the project on time and on budget. We'll prepare this at kick-off, and we'll use it as a primary tool to communicate the project plan by regularly distributing it (with updates) to the project team.

A main driver of the schedule is coordination with the public and various Committees involved in the project, particularly the Sustainable Transportation Plan Advisory Committee (STPAC). Depending on scheduling, we will create a draft **Public Engagement Plan** prior to the kickoff for discussion purposes. During the kickoff

meeting we will confirm key stakeholders and teaming partners, as well as brainstorm ideas for how best to coordinate with the STPAC such as meeting formats, locations, and communications. Ultimately, we will use the feedback received at the kickoff to refine both the project schedule and Public Engagement Plan.

Finally, we have found that an important piece of both project management and ultimately the final plan is the **project identity and branding**. Identifying brand, logo, fonts, and color standards at the beginning of the project can save a lot of time down the road, so we will incorporate a draft of these elements into the kickoff meeting to get a head start on this task. The budget assumes one additional round of review to these items in addition to conversation at the kickoff.

### Ongoing Coordination

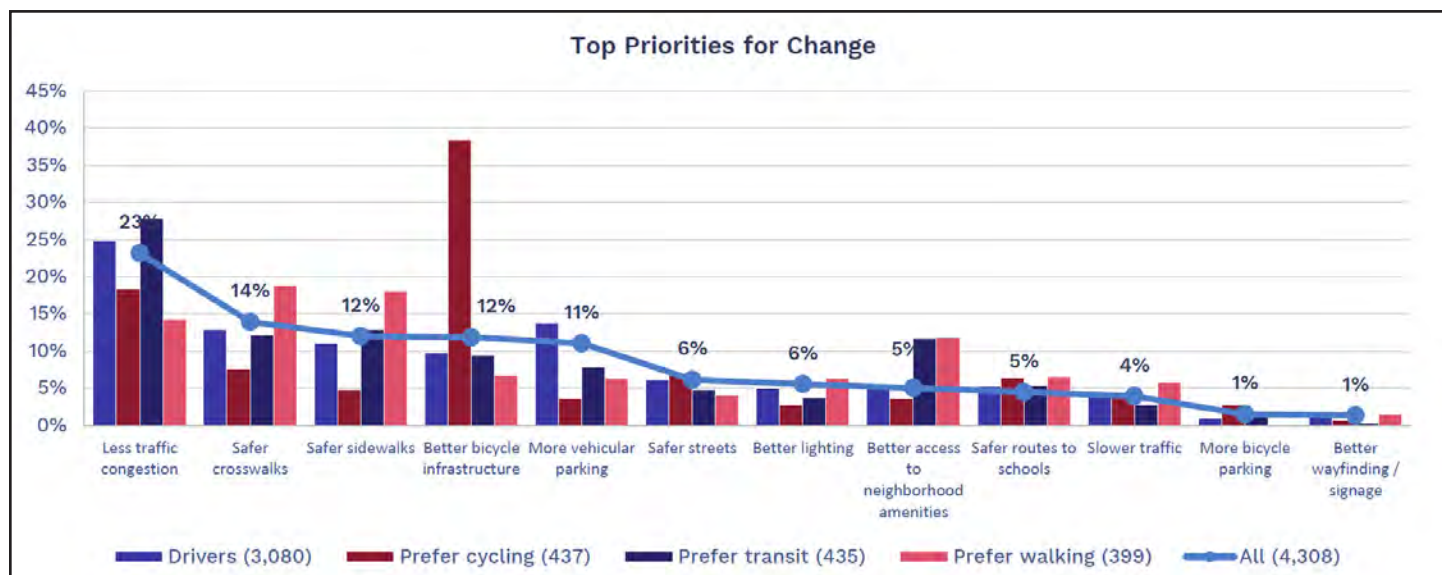
At the kickoff or soon after, we will find a mutually agreeable time for a biweekly check-in. Our biweekly project meetings will be a chance for the Town and Stantec project manager groups to provide project updates if necessary. If applicable, we will include topic area experts and/or task leads. It is likely that these meetings will be recurring conference calls with screen share and video as necessary to check in, although since we are local, we can meet in person when necessary.

### STPAC Check-in #1

As part of the project kickoff, the team will meet with the STPAC to give an overview of the scope, what the project is and is not, and to get their feedback on project process and focus.

### Task 1 Deliverables

Bi-weekly project meetings, project schedule, public engagement plan, and project logo and brand.



The Envision Arlington survey provides a great starting point to understand specific mobility problems in the town. Further survey data reports that not only are nearly three quarters of people getting around Arlington by car, but almost a third of respondents say they aren't getting around Arlington the way they want to.



## Task 2: Transportation Vision Guiding Principles + Review of Past Plans

The development of the Transportation Vision will likely occur throughout the process, but it will be important to understand where the community and Town are starting from at the beginning of the project to guide the rest of the scope.

### Task 2.1 Previous Plan Review

The Stantec team will review existing planning documents, such as the 2015 Arlington Master Plan and the Envision Arlington Survey, to pull out the following additional information as relevant to inform subsequent tasks:

- » Goals/Objectives
- » Data points
- » Policy recommendations
- » Infrastructure recommendations
- » Cost estimates
- » Commitments
- » Next steps

In addition to planning efforts, the project team will work with the Town to compile any infrastructure projects (e.g. street improvements, bus stop enhancements, bicycle training programs, etc.) that are immediately relevant.

**Task 2.2 Transportation Vision Guiding Principles**  
Drawing on the plan review, the Stantec team will work with the Town to develop a Transportation Vision that will guide the rest of the study. It will be important to create a preliminary version of this vision prior to data collection and other project tasks in order to focus our efforts.

At this point, we will create a list of objectives that support the Vision. These will ultimately be refined through the next tasks, particularly data collection and analysis as well as metric development, which will help the Town understand where it is today and how it can set measurable goals for the future.

### Task 2 Deliverables

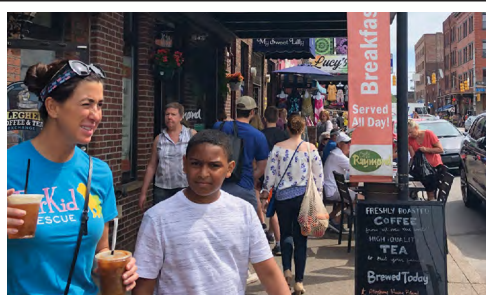
- » Summary slides: Previous Plan Review and Transportation Vision Guiding Principles

## Task 3: Data Collection and Analysis

Collecting data is important; understanding what it means for the project is imperative. This task seeks to give the Town the language necessary to have a conversation about changing transportation in the community. For example, based on the Guiding Principles, we will analyze characteristics such as:

- » What percentage of people who live in Arlington are within a five minute walk of a frequent bus network?
- » Where is safety a concern, based on crash patterns?
- » What is the coverage of the bicycle network? Is that different from the coverage of the bicycle network for people ages 8-80?
- » What are the walks to/from schools like today, and where do barriers and safety concerns exist?

Some data is already available, and working with the Town we will determine what else exists and where there are critical gaps for which further data will need to be collected. Collaborating with the Town on a workplan and project goals coupled with an understanding of the available data will help us be as efficient as possible in this task within the available budget. However, this task currently proposes to collect and review data such as:



**Foot traffic is heavy at weekends and lunchtime**



**Sidewalk space is in high-demand, with many deliveries and handcars**

**17%**  
OF PEOPLE  
IN THE  
STRIP  
WALKED TO  
GET THERE

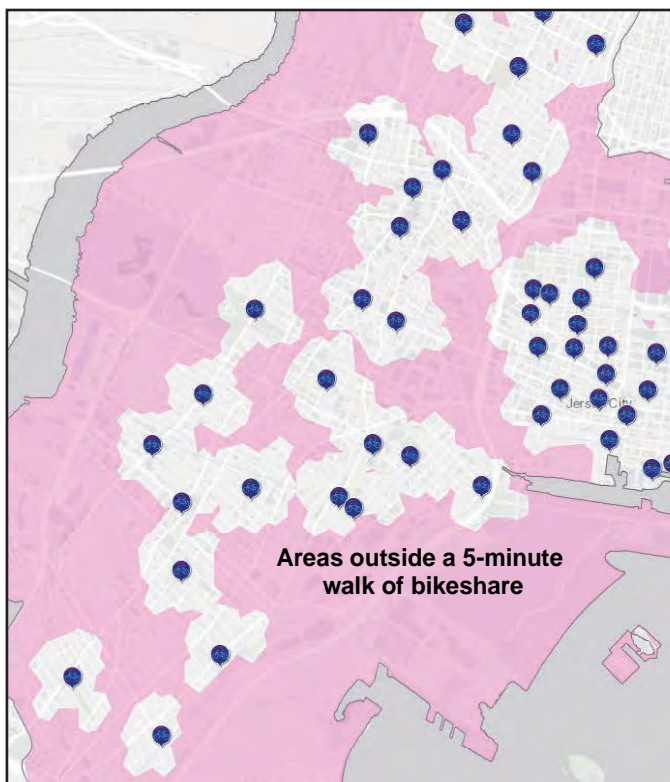
**~40%**  
OF BLOCKS IN  
THE STRIP HAD  
SOMETHING  
OBSTRUCTING  
THE SIDEWALK



*In Pittsburgh, a mix of facts and photos tell the story of how people move through a neighborhood.*



**Deliveries and sandwich boards can conflict with people walking**



↑ Sometimes it is more useful to map where access is NOT in order to understand an issue.

- » **Overview of the existing network.** Using publicly available data through portals such as the Town's GIS Data Hub, MassGIS, and the US Census, the team will create a basemap and base set of layers for analysis, including transit services, street network, walking infrastructure, and bicycle facilities.
- » **Multimodal traffic review.** The team will make every effort to use available data, and the budget assumes that there will be no new counts. If necessary, Stantec can lead the process of obtaining any counts.
- » **Transit stop boarding and alighting.** This will likely make use of MBTA publicly available data, supplemented with field observations as necessary. Stantec has a great working relationship with the T and an understanding of the data they can provide from our work on the Greater Boston BRT project, and would be able to leverage that knowledge for this project.
- » **Crash data and safety analysis.** This task will also make use of publicly available data, supplemented with field observations and any existing review of crashes.
- » **Mode choices in Arlington.** While commuting information is publicly available via the Census, mode of access to retail and other destinations is a real challenge. Arlington benefits from the Envision Arlington Town Survey, from which the team will be able to pull not only mode share for non-commute trips, but also historic trends.

## STPAC Check-in #2

We will assemble findings from this analysis into a preliminary set of slides, and then ultimately a chapter of the final Plan. Slides will be for a STPAC meeting, but will also give us and Town core teams a way to easily discuss findings and point out any gaps in the analysis.

### Task 3 Deliverables

- » Summary slides: Transportation Analysis findings
- » Report chapter: Transportation Analysis

### Task 4: Vision Metrics



This task is a refinement of the Vision developed in Task 2, based on the findings of Task 3. Working from the key metrics related to mobility as well as other goals, the team will develop a list of goals and metrics that both Town staff and the public can understand. We have found that while complex metrics dependent on GIS-based or big-data analyses can be appealing, it is not always practical to assume that the Town will have the resources to track these moving forward. Therefore these metrics will also be easy for the Town to track today and in the future, making use of publicly available resources and simple measurements.

## STPAC Check-in #3

The deliverable for this task is a chapter of the plan and a set of STPAC-friendly slides that summarize metrics, including where the Town is today and where it hopes to be in the future. We hope to work with the STPAC in particular to hone in on metrics and goals for the future.

### Task 4 Deliverables

- » Summary slides: Metrics and Objectives
- » Report chapter: Metrics and Objectives

		
<b>THE MEASURES</b> Five primary metrics will measure progress toward each of the five values	<b>CRASHES</b> Counts and analysis of collisions to measure progress towards making travel safer	<b>TRAVEL TIME</b> Surveys of Newtonians' commutes and other trips to gauge the value of technological improvements to signals, buses, etc.
<b>THE BASELINE</b> Where the city stands today:	1,451*	26 minutes†
<b>THE TARGETS:</b>	0	<26 minutes

↑ Principal in Charge, **Jason Schrieber**, led the Newton-in-Motion plan, which developed a series of simple, trackable targets to measure the City's progress toward its objectives. (Source: Newton-in-Motion)



## Task 5: Likely Transportation Actions

In Task 2, the team will develop a list of likely transportation actions. Rather than a comprehensive list of all improvements, these projects should instead be those that are highest impact in terms of helping the Town reach its goals. Where possible, the team will develop concepts for a particular location that can be translated elsewhere. These will include those identified in previous efforts, opportunities that arise from Task 1, and corridor- or area-based actions needed to achieve desired outcomes. The identified list of projects will be categorized and summarized in a manner (geography, cost, timeline, likelihood of implementation) developed in conjunction with Town staff. Projects will likely include elements such as:

- » Designs for key corridors based in Complete Streets concepts
- » Policies necessary to prepare for/integrate new mobility options
- » Ideas for green/shared streets
- » Tech-based solutions for mobility issues
- » Safety-focused improvements
- » Candidates for pilot/demonstration projects

Projects matter, but often policies matter more. Policies drive short- and long-term decisions, and operationalize goals that can live beyond individual projects. In addition to physical infrastructure projects, our inter-disciplinary project team will complete a list of potential policies for evaluation in this task.

Of particular importance to this project is an understanding of “new mobility” and “emerging transportation.” Our team includes professionals who are developing a suite of next generation planning tools and processes to help communities get in front of trends for their planning efforts. We will draw on our experience working directly with communities like Toronto, Tulsa, Nashville, and Cambridge to provide case studies and lessons learned for Arlington.

### STPAC Check-in #4

The deliverable for this task is both a chapter of the plan as well as a set of STPAC-friendly slides that summarize metrics, including where the Town is today and where it hopes to be in the future. We hope to work with the STPAC in particular to prioritize projects and validate the list.

#### Task 5 Deliverables

- » Summary slides: Project ideas
- » Report chapter: Project + Policies for Arlington's Future

## Task 6: Implementation Strategy

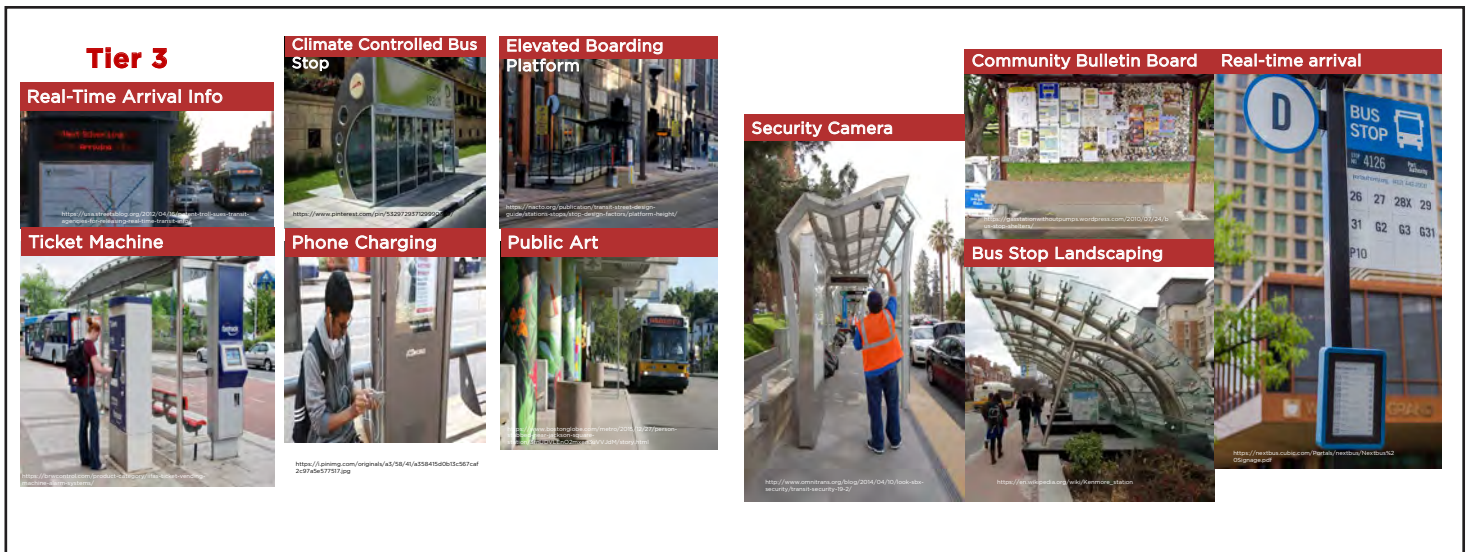
The Stantec team will work with the Town to develop an implementation strategy for the projects, but most importantly for how to move toward the Vision. This will include:

- » Tracking plan for metrics, including milestones, key sources, and any computations necessary
- » Lower-cost “early action” projects



For a “big idea” like a new street design, an angled, labeled rendering like this one for Burlington Great Streets can help people really understand how a street would work better than a plan view or a traditional cross-section.





↑ In Everett, a compilation of best practice photos for bus stop improvements makes it clear what recommendations are, even if transportation lingo like “elevated boarding platform” might not be easy to understand on its own.

- » Overview of necessary timeframe for identified project and policy changes, including how these intersect
- » High, medium, and low priority categorizations for projects
- » Case studies and best practices
- » Strategic links to fiscal planning processes and policy changes

We understand that transportation budgets and staff capacity is strained. Thus, overall the strategy should focus on innovative ways of accomplishing more with less.

#### Task 6 Deliverables

- » Draft implementation strategy (to be finalized as part of Task 7)

#### Task 7: Sustainable Transportation Plan

The final Sustainable Transportation Plan will likely include a chapter for each number-level task included in this scope. We create plans that do not sit on a shelf, and will work with the Town to build momentum for the Plan throughout the whole process. Ideally, by the time the document is released, many of the recommendations will already be on their way to implementation.

The Plan will be easily accessible to the public, both in format and in narrative. The Stantec team draws on graphics, photos, infographics, and tables to ensure clarity and ease of understanding, particularly regarding analysis, conclusions, implementation strategy, and overall intent.

The budget assumes two rounds of edits for the Plan document based on one set of non-conflicting comments from the Town team per round. The consultant team will also compile a summary presentation with a specific focus on creating a set of slides that will work for the Town to present to various groups without the consultant present.

#### STPAC Check-in #5

The deliverable for this task includes a final STPAC meeting, likely prior to finalizing the Plan. The goal of the meeting will be to daylight the Plan contents and answer any questions prior to its public release.

#### Task 7 Deliverables

- » Final presentation
- » Arlington Sustainable Transportation Plan - Draft
- » Arlington Sustainable Transportation Plan - Final

#### Task 8: Public Participation and Outreach

Engagement is a crucial part of the project as with greater development, and the fast pace of mobility innovations, stakeholders, residents, business owners, employees, and other groups in Arlington have a deep understanding of how the larger threats of cumulative change are sweeping through.

We understand that the Town will lead much of the outreach, but the Stantec team can provide guidance and materials based on our experience working with public and stakeholder groups across the Commonwealth and country, including previous work in Arlington.

We have developed some ideas for outreach below; however this will ultimately require discussion at the kickoff to develop a **Stakeholder Engagement Strategy**. For example, while the Stantec team will cover all outreach logistics, it will be important to understand who the Town has (and has not) heard from, both from prior planning processes as well as just in day-to-day operations. Thus, our approach includes:

- » Working with the Town to develop **Stakeholder Engagement Strategy**. We propose to develop one written version of the Strategy, use a project management meeting to review this, and provide one revision based on input from the core Town team
- » Reviewing input from the **2015 Arlington Master Plan** as useful and necessary to plan for additional outreach and avoid “planning fatigue”

Our team prefers creative engagement outlets that focus on key elements of implementation and structured input that can easily become useful data. Our outreach plan will include elements such as:

- » **Focus group conversations.** Often the most effective way to keep stakeholders engaged in a planning process is to allow them to hear from one another. We plan these conversations to be relatively small groups so that they can truly be a conversation.
- » **Online tools.** Our team has extensive experience using Wikimaps, SurveyMonkey, Google mapping, and other tools to provide an online outlet for people to use to submit feedback.
- » **Major Public Event.** At these, the team will look for input from the broader community. Often one of the primary goals of these events, in addition to collecting input, is to “create a spectacle” to raise awareness of the planning effort. The estimated budget includes one day of workshops, which may be in formats such as:
  - A series of “pop-up” events, using low-cost flexible materials to travel to multiple locations in the neighborhood

- Structured exercises such as mapping, voting, and designing cross-sections
  - Intercept surveys simply designed around very few questions, these surveys collect structured input from people on the street. These may be administered traditionally using a street team, or in a non-traditional manner such as through an art installation or interactive exhibit.
  - Partnering with specific community events and/or groups to gather and display public input
- » **Traditional meeting.** To daylight the final report, the team will present findings, thoughts, or ideas and hear reactions from people who have been specifically invited to comment. The budget assumes that there will be one of these meetings at the conclusion of the project, with invitations via email and/or phone with one follow-up to a list of at least 30 stakeholders.

Overall, our approach will be to create materials that can be reused. This includes physical materials such as slides, outreach exercises, and handouts so that both project and Town staff can take a presentation or outreach exercise to multiple interest group meetings if necessary, for example. It also means thinking strategically about how to layer online and in-person outreach, as often online outreach is a great way to reach those for whom the logistics of in-person meeting times are challenging.

*We note that the STPAC Committee meetings are not included in the budget under this task; they are instead listed as a piece of their corresponding tasks. The budget for this task includes general public outreach support for two meetings/events, as outlined in the RFP.*

#### Task 8 Deliverables

- » Stakeholder engagement strategy
- » Public engagement report chapter



Principal in Charge, **Jason Schrieber**, leads a Mobility Working Group meeting for the Envision Cambridge process. The meeting involved actively moving descriptions of projects on boards (on the right-hand side) to create a prioritized list.



# Public Engagement Approach

Public outreach is essential in everything we do, since the most valuable sources of data are the people themselves. Our team will craft a creative engagement process based on our decades of public facilitation experience in community and mobility planning. Collaborating with the town's Sustainable Transportation Plan Advisory Committee, we will strive for equitable, meaningful engagement that will give us as much usable feedback as possible. We recognize the importance of community buy-in to Plan's implementation and will develop an approach that maximizes community participation.



From online surveys and interactive websites to focus groups, walk + bike tours, and public demonstrations, our overriding philosophy about public engagement is that it should be inclusive, **creative**, and fun!



# Project Schedule

Key		
	Deliverable (as listed in Scope)	
	Public Workshop/Engagement Event	
	STPAC Meeting	

Task	2020											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1. Kickoff & Project Management												
2.1. Previous Plan Review												
2.2. Transportation Vision Guiding Principles												
3. Data Collection												
4. Vision Metrics												
5. Likely Transportation Actions												
6. Implementation Strategy												
7. Sustainable Transportation Plan												
8.1. Public Participation & Outreach - Event 1												
8.2. Public Participation & Outreach - Event 2												
8.3. Public Participation & Outreach - Online Tools												

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# 3. Project Team

## We Are All About Mobility Options

Tailored to Arlington’s needs and those of community residents and visitors, our Boston-based **Urban Places mobility team** will lead the development of this 20-year plan. We are abundantly staffed with MA registered professionals and are available to begin working with you immediately upon selection.

Stantec’s Urban Places team approaches complex neighborhood mobility challenges, with a nimble and holistic approach which draws from a broad base of interdisciplinary expertise both locally and nationally. We recognize that urban neighborhood vitality depends not only on its mobility networks but on the places these networks create. The mix of essential uses that creates vitality, place competing demands from those who live, work, learn, play, and enjoy their neighborhood and all the surrounding destinations that make up daily life.

At Stantec, we design the places and the infrastructure that a community depends on. In the Urban Places group, our never-ending quest is to understand how people use mobility networks, what influences their decisions, and how their travels could be improved. Rather than focusing on network supply, we instead quantify the demand for travel and how the collective set of systems and services might best meet it.

In a historic, diverse, and growing place like Arlington there is no one-size-fits-all solution—nor is there an ideal network for every individual mode of travel. Our experience in similar places has taught us that the Town must focus on what makes people choose amongst many networks to accomplish all their daily needs as safely, efficiently, and comfortably as possible.

Our Boston-based mobility teams all share this common understanding. Having led many successful mobility plans, we know that the best plans derive their solutions by directly engaging the people who travel their local networks every day. Modes should not be planned in silos with a focus on vehicles or rights-of-way, but rather on what modal features attract or repel travelers. The best strategies may not always improve capacity but could instead improve safety, convenience, and appeal of different modes, places, corridors, or interactions.

## Team Structure

For this effort, we offer a core team from our Urban Places mobility group. **Ralph DeNisco, Project Manager**, is well known to the greater Boston region and has deep technical knowledge across parking, transit, design, traffic, and policy. This has allowed him to develop sophisticated solutions to complex mobility needs that win community and agency support. Ralph's expertise really shows when he can bring his national knowledge and the full complementary suite of these approaches to unique challenges as here in Arlington.

As **Deputy Project Manager**, we offer **Liza Cohen**, who recently performed a similar role on the GoBoston 2030 Mobility Plan and Everett Transportation and Development Plan. She possesses a wealth of in-depth analytical skills tailored to multi-modal networks found in Boston and its surrounding communities. **Jason Schrieber, Principal in Charge**, is a senior principal of our Urban Places group, and he will ensure that our product for Arlington benefits from the full capability of Urban Places. His 24 years of experience includes developing transportation plans for cities of varying scales and positions him to be a great leader and source of knowledge for this transportation planning project.

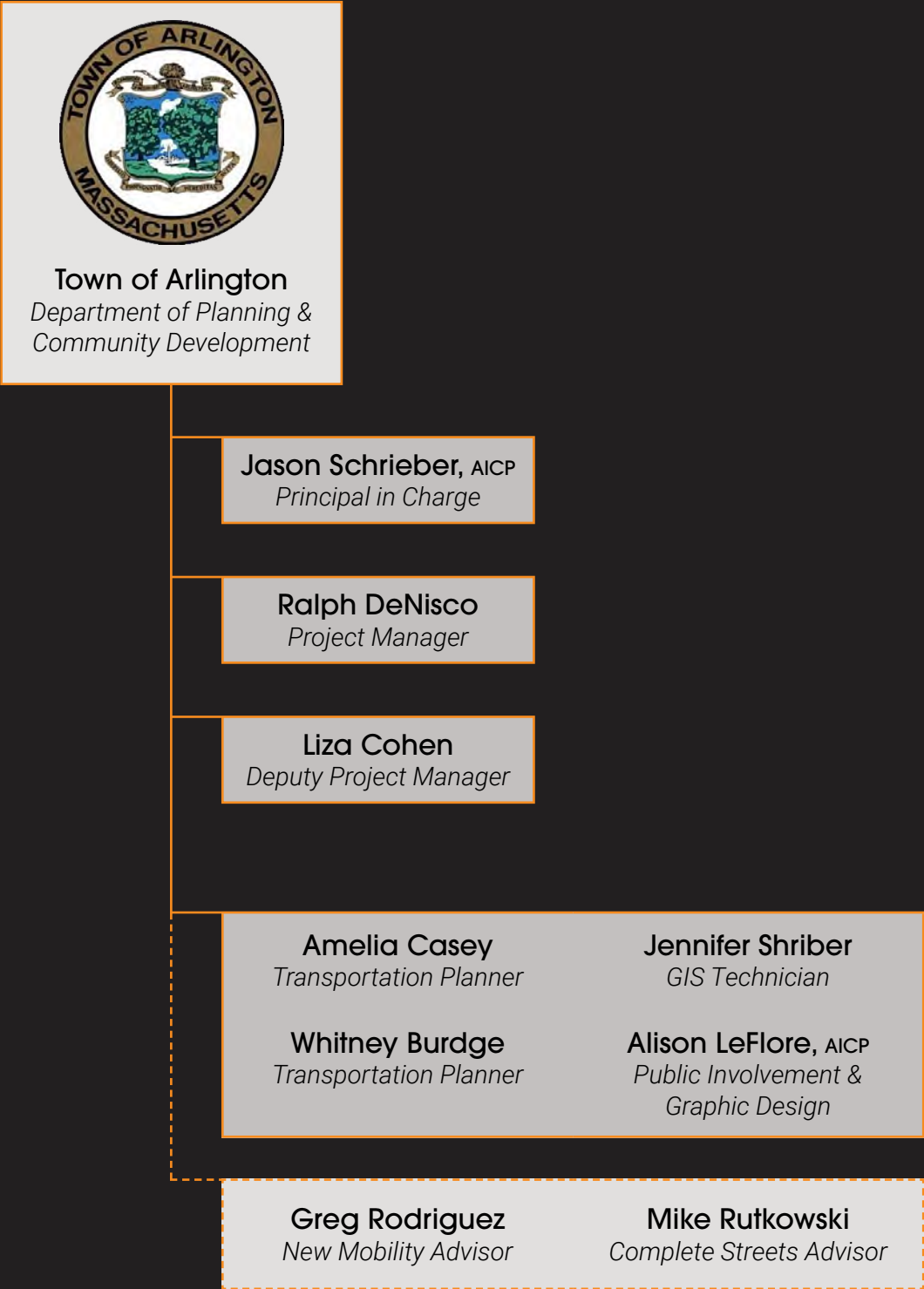
Completing our team are **Transportation Planners, Amelia Casey and Whitney Burdge**, our **GIS Technician Jennifer Shriber**, who has the GIS and graphic skills necessary to effectively present project data, and **Alison LeFlore**, who will work to keep the community involved by leading public engagement initiatives. They all have collaborated on multimodal studies for municipalities of similar scale as Arlington and will benefit from lessons learned in their planning and public engagement efforts.

Our team is further supported by our **New Mobility Advisor, Greg Rodriguez**, who has an extensive background in the implementation of emerging mobility technologies, and, additionally, **Mike Rutkowski**, our **Complete Streets Advisor**. Together, they will provide on-demand guidance on how to make Arlington's streets as inclusive as possible. Both leading specialists in sustainable transportation solutions, Mike and Greg's expertise includes system-level bicycle and pedestrian plans, multimodal crash and safety studies, Complete Streets projects, and policy development.

Resumes which describe the background, professional qualifications, and availability of each of our staff can be found in Appendix A. **We are confident that the staff named here are capable of devoting a significant amount of time to this project in order to meet the schedule outlined in the RFP.**



# Organization Chart









# Appendix A: Resumes



# Ralph DeNisco

## **Project Role: Project Manager**

Ralph has over 20 years of transportation planning experience, with a history of successfully implementing a variety of transportation projects in challenging environments. Working as project manager or providing technical advisory, Ralph has channeled his understanding of interrelated transportation issues into programs able to win both community and agency support. Ralph has also successfully led complex planning, design and development efforts within Boston and other municipalities across the country, specializing in parking, transit, and integrated transportation planning.

## **Years with Stantec**

2

## **Education**

Master of Arts in Urban Affairs,  
Boston University Metropolitan  
College, Boston, MA 2008

Bachelor of Arts in Economics,  
Boston College, Chestnut Hill,  
MA 1992

## **Availability**

30%

*\*denotes projects completed  
with other firms*

## **Relevant Experience**

### **Arlington Parking Management Plan, Arlington, Massachusetts\***

Ralph assisted in this project that analyzed parking supply, demand, location, and pricing in Arlington Center and developed a Parking Management Plan with specific strategies to alleviate real and perceived parking problems in the area.

### **Everett Transportation Management Plan, Everett, Massachusetts**

Ralph served as the Project Manager who is continuing Everett's efforts to remain at the forefront of progressive transportation implementation, both locally and nationally. With the recently opened Encore Resort and waves of development planned, the City wants to build on the success of its now permanent peak hour bus lane by developing additional multimodal infrastructure and transit service projects that will benefit Everett's growing residential, employee and stakeholder populations.

### **BostonBRT Initiative, Boston, Massachusetts**

Working for the Barr Foundation, Ralph served as lead Technical Advisor on all aspects of the BostonBRT Initiative. Seeking to promote the local installation of Gold Standard Bus Rapid Transit, this effort worked with an Advisory Group, state agencies, local municipalities, and advocacy groups to build momentum towards implementable projects. In 2018, the Initiative funded and supported the implementation of three (3) local pilot BRT projects in Arlington, Cambridge/Watertown and Everett.

### **Focus 40, Boston, Massachusetts**

In serving as Deputy Project manager, Ralph consistently provided the strategy and rationale for the structure of Focus40 - the 25 year investment plan positioning the MBTA to meet Boston's 2040 regional needs. The Plan's approach emphasized both a Places and Programs approach to investments, with a focus on the core system as the best way to achieve regional goals in a rapidly changing environment. An exercise involving different potential transportation and land use scenarios was further completed to help crystallize recommendations that best met all futures.

### **Chelsea Downtown Planning, Chelsea, Massachusetts**

Project manager for a critical first step in the continued revitalization of Broadway and downtown Chelsea. This circulation plan will develop strategies to improve multimodal access and mobility throughout the downtown, to support the larger goals of enhancing the community—economically, aesthetically, and in terms of better circulation and safety for all modes.

### **Union Square Development, Somerville, Massachusetts**

Continuing to lead the complex transportation permitting analysis for this multi-site development. Following a progressive multimodal approach, completed analysis of transit, roadway, pedestrian and bicycle impacts of over 2.5 million sf of mixed use development in an urban neighborhood in conjunction with the opening of a new rail line.





# Jason Schrieber, AICP

## **Project Role: Principal in Charge**

For 24 years, Jason has helped hundreds of cities, institutions, and developers broaden their options for urban mobility. He's shown governments from Boston to Abu Dhabi, how to manage parking in difficult shared environments; helped clients develop demand-management programs that get people to choose transit, walking, and biking over cars; and has led multi-modal planning efforts that range from the block to corridor to citywide levels, using mobility investments and strategies wisely to incentivize the use of efficient modes of travel, improving public health, and strengthening communities' sense of place.

## **Years with Stantec**

2

## **Education**

Bachelor of Science in Urban Planning, University of Massachusetts, Amherst, MA 1996

## **Registrations**

Certified Planner #168400, American Institute of Certified Planners

## **Availability**

10%

*\*denotes projects completed with other firms*

## **Relevant Experience**

### **Sidewalk Toronto Waterfront Development, Toronto, Ontario**

Led mobility planning and engineering for a large lake shore development that would transform an industrial port area into a dense, walkable mixed-use development served by streetcars, microtransit, bikes, e-bikes and scooters and a variety of automated transportation services. Involves advanced modeling and design techniques and careful integration with nearby urban fabric.

### **Newton In-Motion, Newton, Massachusetts\***

Leading Newton's first citywide transportation strategy that builds upon a Mayor push for increased transit use and a municipal system. Includes extensive outreach, detailed spatial analysis, and tactical urbanist demonstration projects.

### **GoBoston 2030, City of Boston Mobility Plan, Boston, Massachusetts**

Served as the lead planner for Go Boston 2030, working through close collaboration with concurrent processes that crafted public engagement and digested amazing quantities of "big data" to inform both current patterns and future conditions.

### **Greater Nashville Regional Council Smart Mobility Assessment, Nashville, Tennessee**

Lead planner for the development of a replacement mobility strategy for middle Tennessee after voters turned down a levee to expand traditional transit. Stantec is building technical and stakeholder support for a regional vision that uses smart technology to inform and move people on existing and proposed networks more efficiently.

### **Burlington Great Streets, Burlington, Vermont**

Mobility advisor for the redesign of downtown's Cherry Street and Bank Street area to prioritize pedestrian safety and movement while maintaining the on-street parking and loading needs for businesses. New sustainable multimodal connections to downtown were established with bicycle parking and direct access to the regional transit center on Cherry Street.

### **New Bedford Parking Study, New Bedford, Massachusetts**

Jason oversaw the study of parking system enhancements in New Bedford in support of residents, businesses, and visitors. Some goals of the study included analyzing existing parking supply and daily demand; identifying opportunities for additional parking in areas of high demand; recommending customer-friendly parking enforcement, wayfinding, and signage; and identifying walk, bike, and transit improvements that support a more user-friendly parking system.

### **Water Street Tampa, Tampa, Florida**

Mobility advisor for the revitalization of 50+ blocks into a new walkable, urban district. The plan turns streets designed primarily for cars into a pedestrian-focused framework of landscaped streets, parks, and plazas designed to support a broad range of activities. Following the master plan, we detailed design and permitting for roadway realignment/reconstruction, including major infrastructure and utilities upgrades.



# Liza Cohen

## **Project Role: Deputy Project Manager**

Liza is a multimodal transportation planner with a deep understanding of the user experience in complex transportation networks. Her work ranges from town- and city-wide mobility planning to developing creative, flexible solutions to unique circulation challenges, synthesizing data and community and stakeholder feedback to provide better mobility options. Liza's experience includes serving as the deputy project manager for Go Boston: Boston's Urban Mobility Action Plan, leading an innovative and comprehensive data collection and analysis effort drawing on a diverse array of regional resources.

## **Years with Stantec**

2

## **Education**

Master of Arts in City and Regional Planning, Philadelphia, PA, 2012

Bachelor of Arts in Urban Studies, Bowdoin College, Brunswick, ME, 2008

## **Availability**

40%

*\*denotes projects completed with other firms*

## **Relevant Experience**

### **Go Boston 2030: Boston's Urban Mobility Action Plan, Boston, Massachusetts\***

Liza served as the deputy project manager, leading an innovative and comprehensive data collection and analysis effort drawing on a diverse array of regional resources. The final plan incorporates extensive public involvement to examine Boston's multimodal transportation system, from a spatial City-wide "mobility index" to transit capacity analyses.

### **Everett Transportation Master Plan, Everett, Massachusetts**

Liza is leading the analysis team on this rapid implementation project in a growing Boston metro area city. The Stantec team is developing recommendations for how the City can easily capitalize on new Bus Rapid Transit service opening nearby, explore establishing a Transportation Management Association, adjust its zoning to prepare for current and future transportation trends, and better facilitate walking and bicycling connections to large local developments. This project also established modal goals for Everett.

### **Envision Cambridge, Cambridge, Massachusetts**

Liza led the analytics and metric development as well as a detailed build-out analysis around Alewife Station. This included synthesis of a Cambridge-specific data to model accurate modal impacts of new development and translating those to preferred parking ratios, transit access, and pedestrian and bicycle infrastructure needs.

### **Burlington Great Streets, Burlington, Vermont**

Mobility lead for the redesign of downtown's Cherry Street and Bank Street area to prioritize pedestrian safety and movement while maintaining the on-street parking and loading needs for businesses. New sustainable multimodal connections to downtown were established with bicycle parking and direct access to the regional transit center on Cherry Street.

### **Beacham / Williams Street Corridor Redesign, Chelsea, Massachusetts**

Liza created the planning narrative for this project, which pulled together several technical analyses to tell a compelling story about the need for multimodal accommodations along this key freight corridor. Her work created a final report that simplified key findings in support of final street design recommendations.

### **McGrath Highway De-Elevation Study\*, Somerville, Massachusetts**

Liza assisted in the alternatives analysis of elevated roadway removal using quantifiable metrics related to walkability, community health impacts, and connectivity.

### **New Bedford Parking Study, New Bedford, Massachusetts**

Liza led the data collection and public outreach efforts for this parking study in a historic New England downtown. The study is focused on developing management tools to accommodate summer tourists, ferry users, employees, and residents alike. The process included multiple rounds of public outreach via "pop-up" parking workshops on the street, as well as a comprehensive inventory of public and privately owned parking spaces.



# Amelia Casey

## ***Project Role: Transportation Planner***

Amelia's work focuses on the transportation planning aspects of public and private projects. In her work, she considers how to best integrate data results and public and stakeholder feedback to help improve communities. Her interdisciplinary skill sets include ArcGIS data analysis, mapping and visualization, practical research, community engagement techniques, and the development of visual content for presentations.

### **Years with Stantec**

3

### **Education**

Bachelor of Arts in International and Environmental Studies, College of the Holy Cross, 2016

### **Availability**

60%

### **Relevant Experience**

#### **Watertown Parking Management Plan, Watertown, Massachusetts**

Serving as Project Planner and Analyst to develop a Parking Plan for the two main business districts in Watertown, MA. The Plan is reviewing parking needs, supply and current use to create strategies on how best to support the retail centers and make them more user friendly and welcoming. Recommendations focus on using existing resources more efficiently, while adding new technology and a coordinated approach to managing parking.

#### **SeaTac International Airport Baseline Impact Study, King County, Washington**

Amelia serves as a project analyst for the mobility section of the study, which analyzes the transportation and multimodal impacts of the SeaTac International Airport on six surrounding communities. As a project analyst, Amelia collects data and reports from the King County region spanning from 1997 to present day, and analyzes the transportation changes and trends. The study looks at impacts from three baseline years, ranging from 1997, 2009, and 2019. Specific categories included in the transportation analysis consist of parking, transit, roadway capital improvements, traffic, and pedestrian and bicycle networks.

#### **Methuen Parking Strategy, Methuen, Massachusetts**

Amelia led a data collection effort in this small New England downtown, as well as coordinating the development of final strategies and deliverables. As part of key recommendations for the parking study, Stantec recently completed construction documents for sidewalk and crossing improvements to make public parking facilities more accessible.

#### **Massachusetts DHCD Parking Studies, Various Locations, Massachusetts**

Amelia is serving as the lead analyst for parking studies in small downtowns throughout Massachusetts, including Canton, Dedham, Rockport, Shrewsbury, and Methuen. Studies include comprehensive data collection and mapping of supply and demand, as well as future demand analysis and public and stakeholder engagement.

#### **New Bedford Parking Study, New Bedford, Massachusetts**

In a joint effort between the city's Traffic Commission and Harbor Development Commission, the City is engaged in an assessment of the parking needs of an extended downtown area and portion of the waterfront. Amelia assisted in the review and analysis of existing parking conditions including parking inventory, utilization, policies, management, regulations, and pricing, as well as preparing for and participating in community and key stakeholder engagement initiatives

#### **Downtown Nantucket Parking Study, Nantucket, Massachusetts**

Provides support for downtown parking management changes, including public survey engagement and analysis, data collection and mapping of parking supply and demand, and new parking technologies and pricing.





# Whitney Burdge

## **Project Role: Transportation Planner**

Whitney is a planner with diverse experience ranging from community design and creative engagement techniques to transportation data collection and visualization. She has worked on a range of planning projects, including parking and multimodal studies. Her approach incorporates multimodal planning as standard practice at the core of every planning project with the goal of creating more equitable communities.

## **Years with Stantec**

1

## **Education**

Master of Science in Urban Planning - Developing + Transitional Regions, Oxford Brookes University, Oxford, England 2016

Master of Arts in Architecture: Cultural Identity & Globalisation, University of Westminster, London, England 2011

## **Availability**

60%

## **Memberships**

Member, American Planning Association, MA

*\*denotes projects completed with other firms*

## **Relevant Experience**

### **Chattanooga Airport District Plan, Chattanooga, Tennessee**

This project involved the identification of 3 key sites near the Chattanooga Airport in need of infrastructure improvements to better accommodate multimodal options, improve airport access, improve road safety, and encourage appropriate economic growth, revitalization, and redevelopment. Recommendations included: completion of sidewalk gaps; installation of in-road safety features; and re-configuration intersection vehicle approaches. Whitney collected a comprehensive set of measurements at each site to develop cost estimates for recommended construction work.

### **Hammond Downtown Master Plan, Hammond, Indiana**

The City of Hammond, Indiana commissioned this master plan with the anticipated extension of the South Shore commuter rail service and a new gateway station planned for its historic downtown within the next 10 years. The project team took this opportunity to address Hammond's long period of economic decline through a dramatic, multi-layered transformation syncing an intense, new development approach with multimodal strategies. Whitney helped redesign the entire street network to be safer and appropriate to the local character. She also helped develop shared parking model scenarios and a comprehensive walk/bike network to support currently needed mobility improvements as well as those anticipated by the future train station.

### **Watertown Parking Management Plan, Watertown, Massachusetts**

The result of this updated, comprehensive parking plan will be improved multimodal options and improved parking flexibility for future economic growth in two key squares of the town of Watertown. Whitney conducted interviews with local businesses and designing infographics and other visual materials used for public meetings. The meetings reported on community-wide survey results and also educated on potential parking management and technology approaches.

### **Greater Nashville Regional Council Smart Mobility Assessment, Nashville, Tennessee**

This plan provides a pioneering framework for how emerging technologies can improve mobility access, equity, and efficiency across the Greater Nashville Region. Identified gaps were addressed with case studies and best practices for a suite of recommendations that improve preparedness through cross-coordination for the gradual integration of mobility technology. Whitney was essential in developing recommendations, as well as designing infographics and diagrams to educate on smart mobility technologies and benefits in the local context.

### **Pittsburgh Strip Mobility & Parking Management Plan, Pittsburgh, Pennsylvania**

This plan highlights a key district in Pittsburgh undergoing rapid change in development, and parking and access needs. Stantec is working closely with the City's Department of Mobility & Infrastructure to develop a curbside management strategy, multimodal network plan, and shared parking management strategy. This plan will support the efficiency and flexibility of the street network, as well as the integration and growth of alternative transportation modes as the city continues to evolve and integrate new technologies. Whitney is helping manage research and data, develop a comprehensive and creative public engagement approach, and craft implementable recommendations.



# Jennifer Shriber

## **Project Role: GIS Technician**

With a background in public health and data science, Jennifer approaches transportation planning with a close attention to hard data. Her regular use of GIS and expertise in data visualization help communities understand the data needed to build consensus and inform decision making for both parking and multimodal studies. Jennifer's interest in transportation planning began at the Centers for Disease Control and Prevention. There, she analyzed trends in commute preferences and motor vehicle crash fatalities using national datasets.

## **Years with Stantec**

1

## **Education**

Master of Public Health, Emory University, Atlanta, GA, 2016

Bachelor of Arts, Colby College, Waterville, ME, 2010

## **Availability**

20%

*\*denotes projects completed with other firms*

## **Relevant Experience**

### **Detailed Curbside Inventory, Boston, Massachusetts**

Jen led the mapping and analysis of 95 miles of curbs in Boston and Cambridge using new-to-market technology. Each curb was surveyed twice, with additional pass-throughs if the surveyors recorded discrepancies: a single curb was surveyed up to 4 times. The resulting data will provide a thorough map of parking regulations and other features that affect parking throughout the areas that were surveyed.

### **Pittsburgh Strip District Parking and Mobility Plan, Pittsburgh, Pennsylvania**

Jen is leading the parking analysis portion of this multimodal project. This includes mapping and analyzing demand in Pittsburgh's iconic Strip District, as well as coordinating with a local startup who is using LIDAR to capture a more detailed picture of utilization.

### **Massachusetts DHCD Parking Studies, Boston, Massachusetts**

Provided technical assistance in GIS and data management for municipal parking studies.

### **Matthews Infrastructure, Matthews, North Carolina**

Planner for a parking study to address rising demand due to downtown revitalization. Jennifer provided data collection, management, and mapping services.

### **Ovation Parking Analysis, Newport, Kentucky**

Planner for a 35 acre mixed-use development in Newport, Kentucky. Following the master plan, we undertook a study to manage future increased parking demand through a shared parking model and parking rate recommendations. Jennifer undertook data analysis using a shared parking model and provided mapping and translation of results.

### **Norcross Parking Study, Norcross, Georgia**

Planner for a parking study to address rising demand due to downtown revitalization. Jennifer provided data collection, management, and mapping services.



# Alison LeFlore, AICP

## **Project Role: Public Involvement & Graphic Design**

Alison is a transportation planner with more than 8 years of experience with complex projects in communities large and small. Her professional expertise is in community and master planning, GIS analysis and graphic design, planning for sustainability and equity, and community engagement. She helps clients balance their often-competing priorities and identifies the tools and techniques that allow clients to leverage assets and implement their vision. Alison creates reports, maps, and graphics that are easy for the public to understand but capture the technical nuances of complicated planning projects.

## **Years with Stantec**

1

## **Education**

Master of Arts in Urban and Environmental Policy and Planning, Tufts University, Medford, MA 2012

Bachelor of Science in Environmental Policy and Development, Worcester Polytechnic Institute, Worcester, MA 2009

## **Availability**

40%

## **Registrations**

Certified Planner #28499, American Institute of Certified Planners

## **Memberships**

Vice President, American Planning Association, MA

*\*denotes projects completed with other firms*

## **Relevant Experience**

### **Cape Cod Canal Planning Study, Bourne, Massachusetts**

Coordinated public involvement for the Stantec team completing a large planning study evaluating a wide variety of multi-modal transportation improvements in the Cape Cod Canal area in the Town of Bourne, Plymouth, and Sandwich, Massachusetts.

### **Westfield River Crossing in Woronoco Village, Russell, Massachusetts**

Woronoco Village has two vacant mill buildings separated by the Westfield River. A one-lane, temporary bridge was constructed in the 1980s to provide access to one mill building and several residential properties located across the river when the village's historic bridge was closed. This bridge is reaching the end of its useful life so the Massachusetts Legislature asked MassDOT to study the area. The study is focused on: the replacement bridge costs, forecast traffic volumes, potential environmental and community impact, public and private funding sources, and potential economic, social, and cultural benefits to the Town of Russell and surrounding areas.

### **Burlington Master Plan, Burlington, Massachusetts\***

Project Manager of a multi-disciplinary team of consultants working to develop the Town's first master plan in over two decades. Worked closely with town staff and the steering committee to create and execute a phased approach to addressing the various plan elements including housing, demographics and diversity, natural resources and open space, cultural resources, and town center planning. The plan balances the need for continued economic development, protecting natural resources, and enhancing existing single family neighborhoods. This plan was developed under MGL c. 41 Section 81D.

### **Brockton Comprehensive Master Plan, Brockton, Massachusetts\***

Project Manager for a multi-disciplinary team of consultants working closely with the City to launch a city-wide comprehensive planning effort. The goal of the plan is to increase community pride, recognize the City's assets, and leveraging these assets to create a framework for the City to thrive as a prosperous, livable, and inclusive community. Alison developed a creative engagement strategy that focused on reaching the hard-to-reach communities that often do not participate in public processes, including a Listening Tour intended to introduce the community to the project and build confidence that the City truly valued community perspectives. Public engagement took many forms and was presented in multiple languages, allowing residents and stakeholders to participate however they were most comfortable.

### **Manchester Connects, Manchester, New Hampshire\***

Project Manager of a multi-disciplinary team developing a plan to revitalize the area surrounding Manchester's Millyard. The Millyard was at the center of the City's industrial past and continues to attract creative, technology-based businesses but suffers from a lack of connectivity to Manchester's Downtown, located only a few blocks away. Manchester Connects seeks to improve the connectivity between the Millyard and Downtown Manchester, bring vibrancy and life to the area, and attract more businesses and organizations to the Millyard's historic mill buildings.





# Mike Rutkowski, PE, AICP

## **Project Role: Complete Streets Advisor**

Mike offers 26 years of experience specializing in sustainable transportation solutions and Complete Streets integration. He is experienced in all aspects of transportation planning and engineering including leading numerous multi-modal corridor studies, comprehensive transportation plans, and bicycle -pedestrian plans in the U.S. His expertise includes corridor concept designs and access management, stormwater designs, multimodal crash and safety studies, Complete Streets projects, multiuse trail design, and policy development.

## **Years with Stantec**

7

## **Education**

Master of Science in Civil Engineering, North Carolina State University, Raleigh, NC 1998

Bachelor of Science in Civil Engineering, University of North Carolina, Charlotte, NC 1990

## **Availability**

10%

## **Registrations**

Professional Engineer #20734, State of North Carolina

Certified Planner #134824, American Institute of Certified Planners

## **Memberships**

Member, American Planning Association, MA

Member, Institute of Transportation Engineers

*\*denotes projects completed with other firms*

## **Relevant Experience**

### **Wake Forest Comprehensive Transportation Plan, Wake Forest, North Carolina**

Last adopted in 2003, the 2010 update provided a comprehensive, multimodal revision that reflects recent planning and strengthens the Town's vision for its transportation system through 2035. The update considered the population growth, construction of the NC 98 Bypass, and completion of numerous corridor studies, multimodal plans, and community plans. The update also expanded upon key recommendations from the 2003 Plan and provides the Town with new ideas and tools to effectively create and maintain a balanced transportation system. Finally, the update set the stage for the next update to Capital Area Metropolitan Planning Organization's long range transportation plan.

### **Burlington Great Streets, Burlington, Vermont**

Complete Streets Lead for this project that included a new mixed-use development and the reintroduction of the street grid through the deconstruction of a shopping mall. This multimodal, context sensitive design will position Bank and Cherry - parallel streets one block apart - as key links downtown. These upgraded connections provide balanced access for people on bikes, walking, and taking transit, creating a seamless flow common to old New England downtowns.

### **Whiskey Road Complete Streets Corridor Study, Aiken, South Carolina**

Project Manager for one of the busiest arteries in the Aiken area - one that serves more than 20,000 cars per day in many areas. Providing a future vision that improves safety, traffic congestion, access management, multi-modal provisions, stormwater drainage and access.

### **Six Forks Complete Streets Corridor Improvements, Raleigh, North Carolina**

Served as Complete Streets lead for this high-profile project in Raleigh. The study developed concept design plans for creating a Complete Streets and Streetscape Corridor Plan for Six Forks Road between I-440 and Lynn Road in Raleigh, NC. Plan included strategies for improving pedestrian safety and movement; incorporate place-making opportunities, safety, sustainability, and multimodal transportation connectivity; and include an innovative approach to transportation planning for the most dynamically changing corridor in a fast-growing city.

### **University Avenue Complete Streets Improvement Plan, Morgantown, West Virginia**

Project Manager for the comprehensive vision for this corridor. Used innovative tools, traditional websites, MindMixer, project symposia, and a Steering Committee, to reach a large number of crucial stakeholders to achieve public support.

### **Northeast Area Study, Wake and Franklin Counties, North Carolina**

As Project Manager, responsible for leading a multidisciplinary team to conduct extensive public outreach, technical analysis, reporting, and spatial mapping for this project in the fast-growing and diverse northeast section of Wake County and southern Franklin County. Team updated a premium rail transit plan, provided hot-spot safety analyses of 10 intersections and 10 railroad crossings, and worked with CommunityViz to develop growth scenarios. MetroQuest social media, Facebook, and a project website were all utilized to gather input and weigh recommendations for prioritization.



# Greg Rodriguez

## **Project Role: New Mobility Advisor**

Within the Stantec Urban Mobility Team, Greg uses his legal, regulatory, and policy experience to assist clients with the development of policies and operational frameworks focused on the safe and effective deployment of transportation technologies into communities across the country, including demand responsive mobility, automated and connected vehicles, dockless micromobility, and unmanned drones (both aerial and ground). Greg is a recognized thought leader in the smart mobility space, having authored a number of articles and participated on a number of conferences panels.

## **Years with Stantec**

1

## **Education**

Juris Doctor, James E. Rogers College of Law, University of Arizona, Tucson, AZ 2007

Bachelor of Arts in International Relations, Stanford University, Stanford, CA 2001

## **Availability**

10%

## **Memberships**

Member, Transit and Intermodal Law Committee, Transportation Research Board

Co-Founder and Co-Host, Mobility Podcast

*\*denotes projects completed with other firms*

## **Relevant Experience**

### **Tulsa Mobility Innovation Strategy, Tulsa, OK**

Greg is working with INCOG and the City of Tulsa to develop a strategy for Tulsa's future and how it can best harness new mobility options to close service gaps and address urban mobility problems. This includes extensive conversations with stakeholders such as the Mayor's office, signal systems leads, and academics in the region.

### **City of Palm Desert, Palm Desert, CA\***

Provided regulatory road map for testing of automated and connected vehicles as part of proposed smart transportation corridor.

### **Contra Costa Transportation Authority, Contra Costa, CA\***

Drafted data sharing cooperation agreement focused on collection of data from data generated by smart mobility demonstration projects.

### **National Organizations, including National League of Cities, National Association of Regional Councils, National Association of City Transportation Officials and Association of Commuter Transportation / Docket No. NHTSA-2018-0009\***

Filed comments to the United States Department of Transportation on regulatory issues associated with automated and connected vehicles, including, updating Federal Motor Vehicle Safety Standards, privacy and data management and infrastructure and user fee considerations.

### **International Municipal Lawyers Association, Rockville, MD\***

Contributed to development of Guidance for Regulation of Dockless Micromobility, which includes infrastructure, right-of-way and data sharing and privacy considerations.

### **City of San Clemente, San Clemente, CA\***

Assisted with the negotiation of contract with transportation network companies using federal funding, including data sharing and software-as-a service considerations.

### **Various local governments clients and organizations\***


Provided detailed analysis of legislation moving through Congress focused on smart cities, autonomous and connected vehicles and unmanned aerial systems.

### **Mid-Coast Corridor Transit Project, San Diego, CA\***

Provided legal and regulatory support on federally funded \$2 billion Mid-Coast Corridor trolley extension project.

## **Work History**

- » **Best, Best & Krieger**, Of Counsel
- » **Fagen Friedman & Fulfroft, LLP**, Associate
- » **San Diego Association of Governments (SANDAG)**, Senior Legal Counsel
- » **Office of U.S. Senator Dianne Feinstein, Washington, D.C.**, Legislative Correspondent



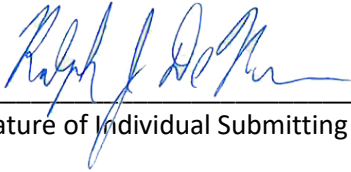
## Appendix B: Required Forms





**CERTIFICATE OF NON-COLLUSION FORM**  
**TOWN OF ARLINGTON**  
**SUSTAINABLE TRANSPORTATION PLAN**

The undersigned certifies under penalties of perjury that this bid or proposal has been made and submitted in good faith and without collusion or fraud with any other person. As used in this certification the word "person" shall mean any natural person, business, partnership, corporation, union, committee, club, or other organization, entity, or group of individuals.



\_\_\_\_\_  
Signature of Individual Submitting Bid or Proposal

Ralph DeNisco, Senior Principal

\_\_\_\_\_  
Name of Individual Submitting Bid or Proposal

Stantec Consulting Services, Inc.

\_\_\_\_\_  
Name of Business

November 5, 2019

\_\_\_\_\_  
Date

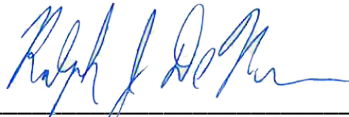
BY STATE LAW THIS NON-COLLUSION FORM MUST BE SIGNED AND SUBMITTED WITH THE BID OR PROPOSAL.

**CERTIFICATE OF TAX COMPLIANCE FORM**  
**TOWN OF ARLINGTON**  
**SUSTAINABLE TRANSPORTATION PLAN**

Pursuant to MGL Chapter 62C, Section 49A, I certify under the penalties of perjury that I have complied with all laws of the Commonwealth of Massachusetts relating to taxes, reporting of employees and contractors, and withholding and remitting child support.

11-2167170

Social Security Number or  
Federal Identification Number



Signature and Title of Individual or  
Responsible Corporate Officer

Ralph DeNisco, Senior Principal

BY STATE LAW THIS CERTIFICATE OF TAX COMPLIANCE FORM MUST BE SIGNED AND SUBMITTED WITH THE BID OR PROPOSAL.





# CERTIFICATE OF LIABILITY INSURANCE

10/1/2020

DATE (MM/DD/YYYY)

9/13/2019

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

**IMPORTANT:** If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

<b>PRODUCER</b> Lockton Companies 444 W. 47th Street, Suite 900 Kansas City MO 64112-1906 (816) 960-9000	<b>CONTACT NAME:</b>
	<b>PHONE (A/C, No. Ext):</b>
<b>INSURED</b> 1414230 STANTEC CONSULTING SERVICES INC. 370 INTERLOCKEN BLVD SUITE 300 BROOMFIELD CO 80021-8012	<b>FAX (A/C, No):</b>
	<b>E-MAIL ADDRESS:</b>
<b>INSURER(S) AFFORDING COVERAGE</b>	
<b>INSURER A:</b> Berkshire Hathaway Specialty Insurance Company	<b>NAIC #</b> 22276
<b>INSURER B:</b> AIG Specialty Insurance Company	26883
<b>INSURER C:</b>	
<b>INSURER D:</b>	
<b>INSURER E:</b>	
<b>INSURER F:</b>	

**COVERAGES** **CERTIFICATE NUMBER:** 14193575 **REVISION NUMBER:** XXXXXXXX

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
	<b>COMMERCIAL GENERAL LIABILITY</b> <input type="checkbox"/> CLAIMS-MADE <input type="checkbox"/> OCCUR  GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PROJECT <input checked="" type="checkbox"/> LOC <input type="checkbox"/> OTHER			NOT APPLICABLE			EACH OCCURRENCE \$ XXXXXXXX DAMAGE TO RENTED PREMISES (Ea occurrence) \$ XXXXXXXX MED EXP (Any one person) \$ XXXXXXXX PERSONAL & ADV INJURY \$ XXXXXXXX GENERAL AGGREGATE \$ XXXXXXXX PRODUCTS - COMP/OP AGG \$ XXXXXXXX
	<b>AUTOMOBILE LIABILITY</b> <input type="checkbox"/> ANY AUTO <input type="checkbox"/> OWNED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS ONLY <input type="checkbox"/> NON-OWNED AUTOS ONLY			NOT APPLICABLE			COMBINED SINGLE LIMIT (Ea accident) \$ XXXXXXXX BODILY INJURY (Per person) \$ XXXXXXXX BODILY INJURY (Per accident) \$ XXXXXXXX PROPERTY DAMAGE (Per accident) \$ XXXXXXXX
	<b>UMBRELLA LIAB</b> <input type="checkbox"/> OCCUR <b>EXCESS LIAB</b> <input type="checkbox"/> CLAIMS-MADE <input type="checkbox"/> DED <input type="checkbox"/> RETENTION \$			NOT APPLICABLE			EACH OCCURRENCE \$ XXXXXXXX AGGREGATE \$ XXXXXXXX
	<b>WORKERS COMPENSATION AND EMPLOYERS' LIABILITY</b> ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below Y/N <input type="checkbox"/> N/A			NOT APPLICABLE			PER STATUTE <input type="checkbox"/> OTH-ER <input type="checkbox"/> E.L. EACH ACCIDENT \$ XXXXXXXX E.L. DISEASE - EA EMPLOYEE \$ XXXXXXXX E.L. DISEASE - POLICY LIMIT \$ XXXXXXXX
A	Professional Liab	N	N	47-EPP-308810 NO RETROACTIVE DATE	10/1/2019	10/1/2020	\$5,000,000 PER CLAIM/AGG INCLUSIVE OF COSTS
B	Contractors Pollution Liab			CPO8085428	10/1/2019	10/1/2021	\$5,000,000 PER LOSS/AGG

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

## CERTIFICATE HOLDER

14193575

TO WHOM IT MAY CONCERN

## CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

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# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

5/1/2020

4/26/2019

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

**IMPORTANT:** If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

<b>PRODUCER</b> Lockton Companies 444 W. 47th Street, Suite 900 Kansas City MO 64112-1906 (816) 960-9000	<b>CONTACT NAME:</b>	
	<b>PHONE (A/C, No, Ext):</b> <b>FAX (A/C, No):</b>	
<b>INSURED</b> 1415077 STANTEC CONSULTING SERVICES INC. 370 INTERLOCKEN BOULEVARD, SUITE 300 BROOMFIELD CO 80021-8012	<b>E-MAIL ADDRESS:</b>	
	<b>INSURER(S) AFFORDING COVERAGE</b>	
	<b>INSURER A:</b> Berkshire Hathaway Specialty Insurance Company	<b>NAIC #</b> 22276
	<b>INSURER B:</b> Travelers Property Casualty Co of America	25674
	<b>INSURER C:</b>	
	<b>INSURER D:</b>	
<b>INSURER E:</b>		
<b>INSURER F:</b>		

**COVERAGES****CERTIFICATE NUMBER:** 16046527**REVISION NUMBER:** XXXXXXXX

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> <b>COMMERCIAL GENERAL LIABILITY</b> <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR <input checked="" type="checkbox"/> <b>CONTRACTUAL/CROSS</b> <input checked="" type="checkbox"/> <b>XCU COVERED</b> GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PROJECT <input checked="" type="checkbox"/> LOC OTHER:	N	N	47-GLO-307584	5/1/2019	5/1/2020	EACH OCCURRENCE \$ 2,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 1,000,000 MED EXP (Any one person) \$ 25,000 PERSONAL & ADV INJURY \$ 2,000,000 GENERAL AGGREGATE \$ 4,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000 \$
B B B	<input checked="" type="checkbox"/> <b>AUTOMOBILE LIABILITY</b> <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> OWNED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS ONLY <input type="checkbox"/> NON-OWNED AUTOS ONLY	N	N	TC2J-CAP-8E086819 TJ-BAP-8E086820 TC2J-CAP-8E087017	5/1/2019 5/1/2019 5/1/2019	5/1/2020 5/1/2020 5/1/2020	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ XXXXXXXX BODILY INJURY (Per accident) \$ XXXXXXXX PROPERTY DAMAGE (Per accident) \$ XXXXXXXX \$ XXXXXXXX
A	<input checked="" type="checkbox"/> <b>UMBRELLA LIAB</b> <input checked="" type="checkbox"/> OCCUR <input checked="" type="checkbox"/> <b>EXCESS LIAB</b> <input type="checkbox"/> CLAIMS-MADE DED <input type="checkbox"/> RETENTION \$	N	N	47-UMO-307585	5/1/2019	5/1/2020	EACH OCCURRENCE \$ 5,000,000 AGGREGATE \$ 5,000,000 \$ XXXXXXXX
B B B	<b>WORKERS COMPENSATION AND EMPLOYERS' LIABILITY</b> ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N N	N/A	TC2J-UB-8E08592 (AOS) TRJ-UB-8E08593 (MA, WI) EXCEPT FOR OH ND WA WY	5/1/2019 5/1/2019	5/1/2020 5/1/2020	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTH-ER E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)  
TO WHOM IT MAY CONCERN

**CERTIFICATE HOLDER****16046527**TO WHOM IT MAY CONCERN  
370 INTERLOCKEN BOULVEARD  
SUITE 300  
BROOMFIELD CO 80021**CANCELLATION**

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE